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ABSTRACT

This set of briefing materials is designed to provide policymakers at the federal and state levels, journalists, and others with a quick overview of youth apprenticeship in the United States today. Chapter 1 describes what youth apprenticeship is. A map showing the beginnings of a nationwide youth apprenticeship system is provided. Chapter 2 on youth apprenticeship at the program level contains the following: matrices of Jobs for the Future's (JFF) National Youth Apprenticeship Initiative (NYAI) sites and Department of Labor (DOL) National Youth Apprenticeship Demonstration grantees, descriptions of JFF and DOL sites; a progress report on Boston's Project ProTech; and ProTech press notices. Chapter 3 has three sections: a framework for state youth apprenticeship policy; the paper, "Youth Apprenticeship: Issues and Practice in the Development of State Systems--With Examples from Maine and Wisconsin"; and a matrix illustrating youth apprenticeship legislation in states. Chapter 4 is composed of the following: a framework for federal youth apprenticeship legislation; a paper, "Proposals for Federal Youth Apprenticeship Legislation--A JFF Perspective"; a report, "Youth Apprenticeships: Improving School-to-Work Transition for the 'Forgotten Half'"; and a matrix showing federal youth apprenticeship legislation from the last congressional session. Chapter 5 lists these contacts: JFF sites; DOL sites; other youth apprenticeship sites; state-level youth apprenticeships; and JFF's NYAI advisory group. Chapter 6 contains model youth apprenticeship legislation and fact sheets on youth apprenticeship and insurance liability and child labor laws and youth apprenticeship. Chapter 7 lists 38 items for recommended reading and a JFF publications list. (YLB)

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LEARNING THAT WORKS

A Youth Apprenticeship Briefing Book

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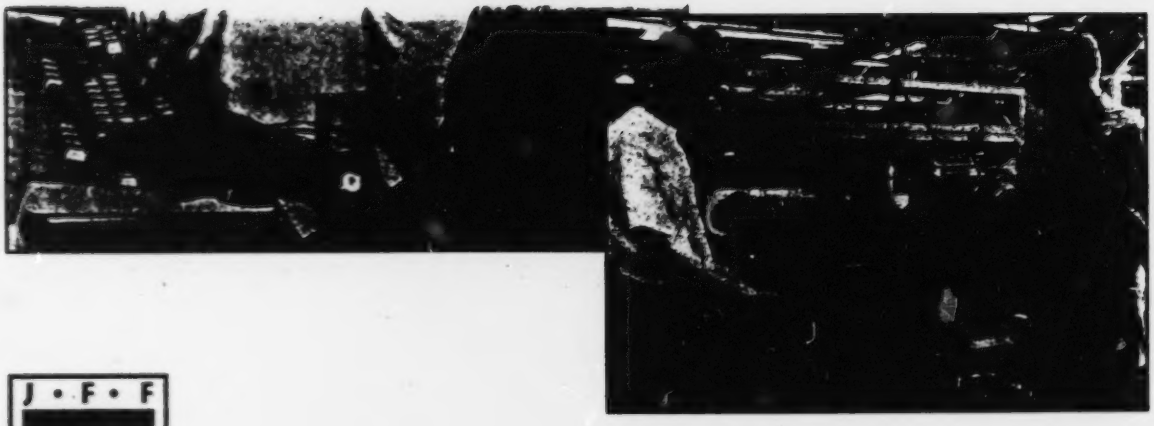

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JOBS FOR THE FUTURE

May 1993

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LEARNING THAT WORKS

A Youth Apprenticeship Briefing Book

JOBS FOR THE FUTURE

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May 1993

Front Cover Photos Courtesy of Project ProTech/Photographer Marian Harders and The Pennsylvania Youth Apprenticeship Program

"We've got two very clear tracks right now—college prep and 'nowhere' prep."

—Parent, from JFF's *Voices from School and Home: Wisconsin Parents and Students Focus on Youth Apprenticeship*, 1/92, p. 9

"Do you know what a sleep technician does? Do you know what a histology technologist does? Do you know what a wafer fabrication process technician does? More importantly, if one of your students wants to become one, could you tell him what courses he needs to take? We asked ourselves these questions and became very dissatisfied with our answers."

—Annette G. Craig, Director, B.J. Skelton Career Center, Easley, SC

"Business is only as flexible as its employees. And too often employees' skills are neglected in planning business investments. In the long run, a company with state-of-the-art equipment and a workforce without state-of-the-art skills is not going to succeed. Therefore, the workforce skills, in my opinion, are critical to the success of any business."

—Jerome Doubroff, Eastalco Aluminum Co., From the Baltimore Sun, 1/14/91

"This program has taken a group of average high school students...changing them from irresponsible boys to accountable men equipped for success in society."

—Chris Barto, youth apprentice, testifying before Senate Labor Committee. From Williamsport Sun-Gazette, 6/21/92

"We are now learning a lot more about learning and we know that a lot of people with very high intelligence levels learn better in practical settings. We also know that practical skills now require a higher order of thinking. So the old dividing line between vocational and academic is fast becoming blurred and will become more and more meaningless as time goes on, which gives heightened importance to this discussion [on youth apprenticeship]."

—President Clinton, Economic Conference, 12/14/92

THIS CHAPTER CONTAINS:

Voices from the Field

Introduction

What is Youth Apprenticeship

A Range of School-to-Work Transition Options

What's in a Name? On the Term "Youth Apprenticeship"

From Program to System: We Don't Want Just Another Program

JFF's Definition of Youth Apprenticeship

JFF's Essential Elements of Youth Apprenticeship

Graphs: Evidence of the Need for New Career Pathways

Map: The Beginnings of a Nationwide Youth Apprenticeship System

"These kids get bored in school. They don't make a connection...The kids working here are making a connection with what they learn."

—John Torinus, West Bend, WI print shop owner. From the Los Angeles Times, 11/10/92

"This, to me, is the only way to teach. People don't think in math, then history, then science."

—Cathy Armstrong, teacher. From the Los Angeles Times, 11/10/92

"What we are saying is look closer to home. There is a labor force there. What they need is assistance in being trained and prepared for those jobs, and if you provide that assistance and you provide that experience, this labor force, which has been untapped in the past, is a very valuable labor force for you."

—George Moriarty, acting head of Boston Private Industry Council. From WBUR-FM report by Bob Oakes, 12/7/92

"If they don't have the workers, companies will dumb down, move to Mexico, or follow other strategies...Schools need to restructure the same way that corporations are and teach kids in a very different way and in very different skills."

—Service/public sector union representative. From JFF's *Union Perspectives on New Work-based Youth Apprenticeship Initiatives*, p. 14

"I asked the German industrialist, if you just had to settle for one thing that gave you a competitive edge against the rest of the nations of the world,... what would it be? He said, 'Our apprenticeship program.'"

—Treasury Secretary Bentsen, Economic Conference, 12/14/92

Introduction to Briefing Book

In only a few years, youth apprenticeship has moved to prominence as a policy strategy for improving the school-to-work transition in the United States. Media coverage has been extensive. A number of innovative demonstration projects have entered their second year. In the last session of Congress, at least eight different bills were introduced to provide federal support for youth apprenticeship. The new administration is likely to propose youth apprenticeship legislation early in the current session.

Yet for all the interest and activity, there remains significant confusion. What is youth apprenticeship? And what is it not? How significant a contribution can youth apprenticeship make to the daunting challenge of preparing young people for citizenship and careers? Is something significant developing? Or is youth apprenticeship simply another policy fad?

This set of briefing materials is designed to provide a quick overview of youth apprenticeship in the United States today—what it is; where it can be found; design and implementation issues at the program, state and national levels; policy innovations that can make it easier for youth apprenticeship to become a significant mainstream educational option. These materials are designed as an introduction—for policymakers at the federal and state levels, journalists, and others eager to learn more about youth apprenticeship.

This report captures a moment in time. It is not a definitive survey of best practice, nor is it an elaborate evaluation of the proper place of youth apprenticeship in the nation's education and training system. We hope, though, that through words, charts, maps, and resource lists, we add some clarity and specificity to a policy discussion that has often proceeded with little hard data.

Jobs for the Future is well-positioned to organize this material. During the past two years, we have selected and worked closely with a core group of ten youth apprenticeship demonstration sites. This year, we are also providing technical assistance to a group of fifteen programs funded by the U.S. Department of Labor. In addition, we have direct experience with states developing youth apprenticeship initiatives: a consortium of twenty states has met twice under JFF's auspices; we are also providing additional assistance to six states that received youth apprenticeship grants from the U.S. Department of Labor last year. Jobs for the Future brings this knowledge and experience base to the national policy debate.

What is Youth Apprenticeship?

Youth apprenticeship is an ambitious model for linking school and work for in-school youth—particularly those who have not traditionally received a four-year baccalaureate. Jobs for the Future defines youth apprenticeship as a learning program for young people, age 16 and older, that integrates on-the-job learning with school-based instruction, that bridges high school and post-secondary schooling, and that results in both academic credentials and certification of mastery of work skills.

Youth apprenticeship takes its inspiration from European training systems, which provide structured, non-university routes to a broad range of good careers. In countries such as Denmark and Germany, as many as 60 percent of young people enter careers through a rigorous multi-year program combining paid work and training on-the-job with related classroom instruction. Advocates of youth apprenticeship in this country contrast the high unemployment, low status, lack of access to jobs in the primary labor market, and isolation from adult mentoring and responsibility of most American 16-19-year-olds with the high status and earning power and the significant amount of adult attention and responsibility received by young people in many European nations.

No one proposes simply transferring the German, Danish or any other national system to the United States. The unique set of laws, political structures, social norms, and educational and industrial institutions in the U.S. make that impossible. However, the basic design elements of those systems are transferable:

- Significant coordination between employers, schools, labor, and government;
- The integration of school- and work-based learning experiences;
- Broadly recognized certification of academic and occupational skill mastery;
- A coherent, easily understood *system* that serves a significant proportion of young people; and
- A range of high status, high skill, high paying career routes that do not require a four-year baccalaureate.

Given the relative newness of youth apprenticeship in the U.S., no single model has won general acceptance. There is increasing consensus, however, on the basic design elements that differentiate youth apprenticeship from other, less intensive models for linking school and work. Jobs for the Future has identified the following key design elements of youth apprenticeship:

- Employers provide paid work experience and structured worksite learning.
  At the heart of youth apprenticeship is the provision of paid employment during the school year and summers. Without employment, there can be no youth apprenticeship. Jobs should be of progressively high quality as the apprentice moves through the multi-year program and should be tied to clear career ladders in the industry. What sets this model apart from other school-and-work efforts is its insistence on both education reform and expansion of the labor market options available to in-school youth.

  Employers provide more than paid work experience; they also provide participants with guided learning experiences at work. Through formal training agreements, workplace training plans, mentoring by workplace personnel, and other approaches, participants learn important employability and technical skills at the worksite.

- Schools integrate academic and vocational learning. As with the best of vocational education reform, youth apprenticeship programs break down the barriers between academic and vocational learning and infuse each with the best aspects of the other. Youth apprenticeship programs prepare to high academic standards. Classroom instruction focuses on cognitive as well as occupational skill development. The integration of academic and vocational learning is accomplished through team teaching, project-based instruction, and other instructional innovations.

- School and workplace learning are coordinated and integrated. Classroom instruction and workplace experiences are coordinated so that the instructional program at one location reinforces the other. This coordination is structured through regular interaction, consultation, and planning between workplace and school personnel.

- Programs articulate high school and post-secondary learning programs and last at least two years. As in Tech Prep and other efforts to build strong bridges from high school into post-secondary opportunities, youth apprenticeship models generally begin in eleventh or twelfth grade and continue into one or two years of post-secondary learning. Most youth apprenticeship models also specify that post-secondary credits and certificates should be transferable to four-year academic programs. This bridge to academic as well as occupational advancement is important: in focus groups with young people and parents, Jobs for the Future has found that youth apprenticeship must facilitate advancement into post-secondary education as well as employment if it is to be seen as an attractive option.

- Completers receive widely recognized credentials of both academic and occupational skill mastery. Successful youth apprentices should receive certification of mastery of occupational skills that is accepted by the industry in which they train and is recognized by firms across the industry. Training should prepare participants for employment in any of a number of jobs that are part of a broad occupational cluster. This certification is in addition to academic qualifications earned, including a high school diploma and post-secondary certificate or degree.

- Programs are governed by broad coalitions of institutional partners. Because youth apprenticeship requires new behaviors and collaborative commitments from high schools, employers, workers and their unions (where appropriate), post-secondary institutions, community groups, and government, representatives of the key stakeholders must be part of the program governance structure.

This set of basic program elements distinguishes youth apprenticeship from other efforts to link school and work in this country, including: cooperative education, registered apprenticeship, career academies, and Tech Prep. (See *A Range of School-to-Work Transition Options* on next page.) By combining elements rarely linked in these other models—the integration of academic and vocational learning; the integration of school- and work-based learning; the linkage between secondary and post-secondary components; and the award of an industry-recognized credential—youth apprenticeship serves as an ambitious model toward which many programs and models can grow.

Evidence from the field indicates that there is interest in and experimentation with this kind of coordination. A number of Tech Prep programs are working to build a youth apprenticeship component. In California, several career academies are expanding their work component into more of a youth apprenticeship model. Several district-wide vocational education reform efforts now include youth apprenticeship as one component of their plan for changing the last two years of high school.

This is important: as much as possible, the various streams of school-to-work transition reform should head in the same direction and should be part of a whole rather than a contradictory set of isolated experiments. Otherwise, the nation will continue to create and promote a bewildering set of options for schools and young people. And differently-designed programs, funded from different agencies and program budgets, often with different eligibility criteria, will fight unproductively to attract the same students. Those who promote youth apprenticeship in the U.S. do so not as a new program, but as part of a new *system* for providing career opportunities for the majority of American young people.

A Range of School-To-Work Transition Options

Cooperative Education
Combination of vocational coursework and work experience;
One year or less in duration;
Students earn high school credit while on the job;
Jobs secured by written cooperative agreements between schools and employers;
No specified integration between classroom activity and work experience.

School-to-Apprenticeship
Work preparation model housed in vocational programs;
Students enter into a registered apprenticeship slot in their industry of choice in senior year and continue after graduation;
Students maintain part-time job during senior year;
No additional coursework requirements.

Vocational Magnets
Specialized schools operating under a particular occupational focus;
Amount of work experience varies with industry and school structure;
Offers college prep program but typically doesn't have formalized articulation agreements with postsecondary institutions.

School-based Enterprises
Small businesses created and operated by students that fill gaps in the local economy while providing entrepreneurial, vocational and academic training;
Schools act as small business incubators, not through simulations but real, economically viable business ventures.

Middle Colleges
Collaborations between high school and community colleges to prevent students with college potential from dropping out;
Offer high school students the use of community college facilities, resources and advanced credit;
Offer small classes and individual attention with strong emphasis on career development;
Focus is on academic rather than vocational curriculum;
Internships offered to students within their field of choice.

continued

A Range of School-To-Work Transition Options *continued*

Career Academies

School-within-a-school programs in comprehensive high schools, ranging from two to four years;
Originally focussed on developing the skills of at-risk students in an occupational cluster;
Now serve middle- and high-performing students as well;
School-based with links to employers;
Usually offer summer jobs and brief internships during the school year;
Offer small classes, team teaching and block-scheduling of students;
Emphasize a strong applied academic curriculum.

Tech Prep

Links the last two years of high school with two years of college or technical school, in an articulated, progressive curriculum;
Leads to an associate's degree;
Offers students the opportunity to take advanced technical courses at the high school level and receive college credit upon completion;
Strong applied academics focus;
Limited work experience component.

Youth Apprenticeship

Employers provide paid work experience and structured worksite learning;
Schools integrate academic and vocational learning;
School and workplace learning are coordinated and integrated;
Programs articulate high school and post-secondary learning and last at least two years;
Completers receive widely recognized credentials of both academic and occupational skill mastery;
Programs are governed by broad coalitions of institutional partners.

What's in a Name? On the Term "Youth Apprenticeship"

In a recent report, The CQ Researcher noted that:

the most vocal resistance to the youth apprenticeship movement centers not on the goals and methods of the program but on the use of the name. Many union and state government officials argue that the word "apprentice" should be reserved for the decades-old "registered apprenticeship" program, which is strictly defined by federal and state regulations to refer to the 43,000 highly structured, multi-year training programs that have been negotiated around the country...

These critics feel that confidence in the registered apprenticeship system might be undermined by generic use of the term "youth apprenticeship" to identify a range of programs for in-school youth that share only some of the characteristics of registered apprenticeship.

There are other critics as well. Some non-union employers hear the term "apprenticeship," think of joint union-management programs in the building and construction trades, and stay at arms' length. Garrison Moore of the National Alliance of Business raises another concern. "It is unfortunate that the term 'youth apprenticeship' was adopted because it sounds so blue collar," says Moore, particularly when many new programs are likely to be in the expanding service industries. For these reasons, there have been numerous efforts during the past several years to find a new name.

The term is indeed problematic. There are significant differences between registered apprenticeship and youth apprenticeship. For one thing, registered apprenticeship is almost exclusively a post-secondary option for which in-school young people do not qualify: participants are typically in their mid- to late-twenties. In addition, more than half the 300,000 active apprentices in this country are concentrated in the dozen or so joint labor-management programs in the building trades.

Youth apprenticeship efforts target a different population group: 16 to 20 year olds still in high school. Youth apprenticeship programs have a more rigorous and varied academic component than registered apprenticeship, where classroom instruction is related solely to the industry-specific training. And youth apprenticeship targets industries and occupations where employers perceive a current or incipient shortage of technician-level workers for which they have no adequate recruitment or training system.

Before the 1992 Presidential campaign, youth apprenticeship programs were often labelled "school-to-work" programs, to avoid conflict with the registered system and its employer and union representatives. However, during the campaign, both President Bush and candidate Clinton publicly advocated creation of a national "youth apprenticeship" system. The name—which was becoming increasingly popular among programs, state policymakers, and the media— took hold.

Despite its negative baggage, the name "youth apprenticeship" has gained currency for another more substantive reason: the term captures important basic design elements of these new youth education and employment efforts. These programs share two basic elements with apprenticeships of all kinds—from the apprenticeship of a novice rug weaver in Iran to that of a pipefitter in the United States. These are:

1) a pedagogy based on learning-by-doing and on the progressive mastery of skills by a novice learning on-the-job from masters; and

2) a long-term relationship that yields certification of occupational skills broadly recognized by one's industry.

In addition, the term emphasizes that these are youth programs to create better career opportunities for in-school young people still in their teens. By consistently using the term "youth apprenticeship" to identify these programs, practitioners and policymakers hoped to be able to draw a clean distinction between the two very different efforts and to clarify the ways in which youth apprenticeship might feed into or be designed to qualify as registered programs.

It appears, though, that for both political and practical reasons, the search for a new name should be accelerated. As European experience indicates, effective national school-to-work transition systems depend upon a close collaboration between employers, labor, educators, and government. And in the United States today, for better or for worse, the name "youth apprenticeship" has become an obstacle to that collaboration for certain groups. Organized labor and the employer community involved in registered apprenticeship are likely to oppose federal school-to-work transition legislation that uses the term "youth apprenticeship." If the price of building a foundation of trust from which to move forward is the use of a different term in federal legislation, that may not be a particularly high cost.

On February 3, 1993 representatives of the registered apprenticeship system met for the first time with about a dozen individuals representing local, state, and national efforts promoting youth apprenticeship to discuss areas of consensus and disagreement. Among other things, the group that met that day agreed to recommend that proposed federal school-to-work transition legislation not use the term "youth apprenticeship." The group agreed that the federal government should expand its support to programs that share the basic elements described above and in the consensus Framework for Federal Youth Apprenticeship Legislation (see section in this binder on National Policy), but that efforts should be made to coin a new name. At the same time, it was acknowledged that, given that numerous state and local initiatives already use the term "youth apprenticeship," including legislation in at least five states, a shift in terminology is unlikely to occur everywhere or overnight.

From Program to System: We Don't Want Just Another Program

The essential elements of youth apprenticeship described in the section "What is Youth Apprenticeship?" above, are elements of a program. These are the basic program design elements that Jobs for the Future and others believe define youth apprenticeship and distinguish it from other efforts to link school and work in this country. But there is remarkable consensus that the last thing the nation needs is another program, no matter how well-conceived. Advocates of youth apprenticeship begin from the view that, unlike many of our international competitors, the U.S. lacks a national school-to-work transition system. The need, therefore, is not for another program, but rather for federal and state activities that put in place the building blocks of a system to serve a significant proportion of young people.

Defining youth apprenticeship solely in program terms will doom it to marginal impact. Mainstream education programs will be unaffected as pilots receive funding, grow for a few years, and then wither when the funds dry up. Youth apprenticeship will be seen as one disconnected, add-on effort among many, competing for scarce resources and serving the same populations as other programs. It may even be designed so much as a stand-alone program that coordination and integration with other initiatives such as Tech Prep or career academies becomes impossible.

Moreover, for youth apprenticeship to be an effective and efficient option that delivers high quality education and training, significant systemic changes are required that are far beyond the capacity and reach of any single program. For example, one of the defining aspects of youth apprenticeship is the credentialling of occupational skill mastery. To be able to create portable credentials, there first have to be standards that are broadly accepted. And there have to be effective, valid ways to assess whether an individual has met these standards of mastery, at school and/or at work. None of these goals can be accomplished in anything but a partial, symbolic way at the program level. They are parts of the missing school-to-work transition system that still needs to be created in the U.S.

Finally, youth apprenticeship and the school-to-work transition must be seen as one piece of a larger whole—an effective career preparation and lifelong learning system. The present moment presents an opportunity for putting in place the building blocks of such a system. Youth apprenticeship is one vehicle that can help advance this agenda; it may even be an important "entering wedge." But the ultimate goal is laying the foundations for a new, seamless web of opportunities for all people to develop their skills and improve their lives. It is not the creation of a new program model that will be grafted onto the existing inadequate workforce development system.

For these distinct reasons, it is critically important that state and national efforts to support and expand youth apprenticeship are defined in terms of system-building—and that they focus on interventions that build the infrastructure and the capacity for a comprehensive national education and training system. Stephen Hamilton of Cornell University has argued recently that four of the most important system components that must be developed if youth apprenticeship is to progress from a promising policy idea to a nation-wide system are:

- A legal definition and basis;
- Institutional supports in the public and private sectors that reduce coordination, design, and implementation challenges;
- Curricula for school- and work-based learning; and
- Incentives for participation from key groups, particularly employers.

Later in this resource packet, in the section on federal policy, Jobs for the Future presents our own views on how the federal government can promote youth apprenticeship in ways that help build a system rather than simply fund more programs. Key elements of this strategy include:

- An intergovernmental partnership between the federal, state and local levels;
- The integration of youth apprenticeship as part of mainstream education reform strategies;
- A commitment to building on already existing school-and-work models rather than starting entirely anew, so that a coherent palette of options emerges at the local level;
- Creation of an institutional vehicle for setting broad performance standards and assessments covering a limited number of occupational clusters, each of which provides a career path into many occupations in a number of related industries.

We are very good in the United States at creating innovative programs, but we have a terrible time trying to build comprehensive and coherent policy systems. Yet, this may be one of the rare windows of opportunity for a federal effort that goes beyond program toward significant system-building. The political climate is supportive. The lessons of the past underscore the limitations of demonstration project funding as a significant lever for systemic change. And the lack of a national system for helping young people into careers is now seen as a serious competitive shortcoming by employers and by politicians. Youth apprenticeship may well be the vehicle for significant institutional change and capacity-building. This hope informs the various materials presented in this resource packet. Jobs for the Future hopes that state and federal policymakers who receive these materials take this challenge to heart when designing legislative or administrative initiatives in this critical arena.

JOBS FOR THE FUTURE'S DEFINITION OF YOUTH APPRENTICESHIP

Jobs for the Future defines youth apprenticeship as a learning program for young people, age 16 and older, that integrates on-the-job learning with school-based instruction, that bridges high school and post-secondary schooling, and that results in both academic credentials and certification of mastery of work skills.

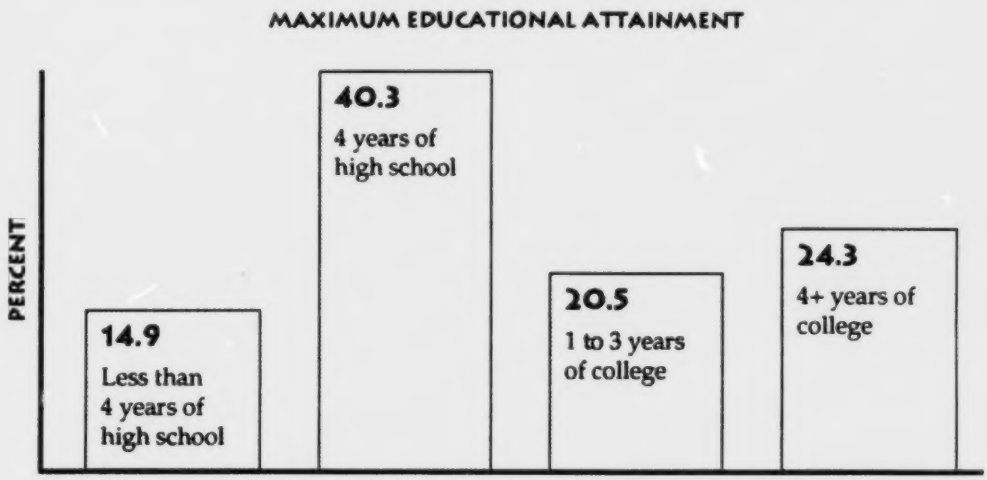
JOBS FOR THE FUTURE'S ESSENTIAL ELEMENTS OF YOUTH APPRENTICESHIP

- Employers provide paid work experience and structured worksite learning.
- Schools integrate academic and vocational learning.
- School and workplace learning are coordinated and integrated.
- Programs articulate high school and post-secondary learning and last at least two years.
- Completers receive widely recognized credentials of both academic and occupational skill mastery.
- Programs are governed by broad coalitions of institutional partners.

Evidence of the Need for New Career Pathways

ONLY 1/4 OF YOUNG ADULTS FINISH 4 YEARS OF COLLEGE

(Percentages for persons 25-34 years old, 1990)

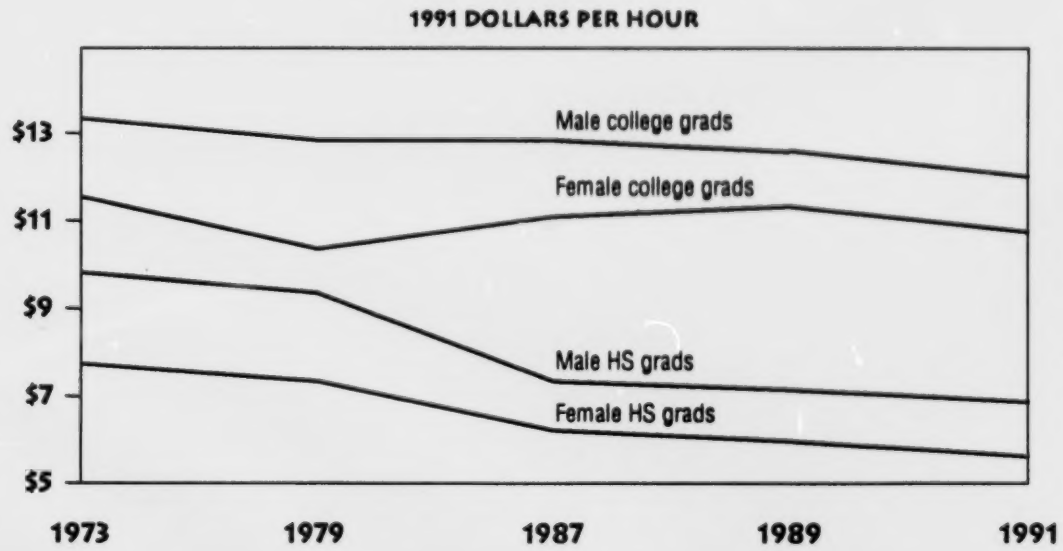


Source: Digest of Educational Statistics

High School Graduates Are Losing Ground

WAGES OF HIGH SCHOOL AND COLLEGE GRADUATES

With 1-5 Years of Work Experience, 1973-1991



Source: Lawrence Mishel and Jared Bernstein. The State of Working America 1992-93, p. 171.

The Beginnings of a Nationwide Youth Apprenticeship System

★ JFF Sites
✤ JFF & Department of Labor Sites
✸ Department of Labor Sites
✦ Other Sites
☐ States attending JFF's 1993 state system-building conference

Disclaimer: This map is intended only as a general indicator of the spread of youth apprenticeship across the country. The sites indicated are in various states of implementation; most have been in existence as youth apprenticeship programs for two years or less. Omission of other programs is not a judgement of their worth—merely a result of the newness and ferment of this field.

★ JFF SITES

Careers in Education
Cambridge, Massachusetts

Cornell Youth Apprenticeship Demonstration Project
Broome County, New York

Health Occupations Program
Kalamazoo County, Michigan

Pasadena Graphic Arts Academy
Pasadena, California

Pickens County Youth Apprenticeship Program
Easley, South Carolina

Roosevelt Renaissance 2000
Portland, Oregon

✚ JFF & DEPARTMENT OF LABOR SITES

Craftsmanship 2000
Tulsa, Oklahoma

Oakland Unified School District
Oakland, California

Pennsylvania Youth Apprenticeship Program
Sites in Pittsburgh, Philadelphia (2) Williamsport and York-Lancaster

Project ProTech
Boston, Massachusetts

✸ DEPARTMENT OF LABOR SITES

The Quality Connection
DuPage County, Illinois

Gwinnett County Youth Apprenticeship Program
Lawrenceville, Georgia

Illinois Youth Apprenticeship Program
Springfield, Illinois

Manufacturing Technology Partnership Program
Flint, Michigan

Middle Georgia Technical Institute
Warner Robins, Georgia

MechTech, Inc.
Baltimore, Maryland

Scripps Ranch High School
San Diego, California

Seminole County School District/ Siemens Stromberg-Carlson
Sanford, Florida

Toledo Private Industry Council
Toledo, Ohio

Workforce LA Youth Academy
Los Angeles, California

✦ OTHER SITES

Fayetteville Area Vocational Center
Fayetteville, Arkansas

Lee County School District
Marianna, Arkansas

Little Rock School District/Metropolitan Vocational Center
Little Rock, Arkansas

Metalworking Connection, Inc.
Arkadelphia, Arkansas

Southern Arkansas University
Magnolia, Arkansas

Westark Community College
Fort Smith, Arkansas

Encina Health Career Academy
Sacramento, California

Health Careers Academy
Bakersfield, California

Maine Youth Apprenticeship Program
South Portland, Maine

Fenway Middle College High School at Bunker Hill Community College
Boston, Massachusetts

Rochester City School District
Rochester, New York

Fox Valley Youth Apprenticeship Program in Printing and Graphic Arts
Appleton, Wisconsin

West Bend Youth Apprenticeship Program in Printing and Graphic Arts
West Bend, Wisconsin

THIS CHAPTER CONTAINS:

Voices from the Field

Matrix: JFF's National Youth Apprenticeship Sites

Matrix: U.S. Department of Labor National Youth Apprenticeship Demonstration Grantees

JFF Site Descriptions

DoL Site Descriptions

Progress Report on Boston's Project ProTech

ProTech Press Notices

Also Available: Progress Report on Broome County, New York's Youth Apprenticeship Demonstration Project

"After my experience with LaToya, I wouldn't hesitate to interview another Project ProTech student for the same position. If she were a medical technologist walking in right now, I would definitely hire her."

—Bob Sawicki, Massachusetts General Hospital. From JFF's Annual Report, 1993, p. 14

"I was tentative about it before I saw the response from the companies...These are not dead-end positions and they aren't going to be just running off copies."

—Chris Michaud-Bailey, guidance counselor. From Portland Press Herald, 11/9/92

"The schools weren't going to do it on their own. The businesses weren't. This needed an entity separate from business and education."

—David G. Meckley, President, Flinchbaugh Engineering, Inc., York, PA. From Industry Week, 2/1/93, p. 20

"We're still having to, in some high schools, introduce the math teacher to the carpentry teacher. But in some high schools, they've got joint planning periods now, so it's starting to take hold. Our ultimate objective is to blur the lines between what was traditionally two separate systems."

—Katharine M. Oliver, assistant state education superintendent, Maryland. From National Journal, 2/6/93, p. 336

"...the large majority of our members are very enthusiastic with the P.Y.A.P. because they also realize that our obligation as a union does not stop at the plant gate, but we must do whatever we can to improve our community so that our youth will have a future here."

—Merrill W. Lambert, President, UAW Local 787, Williamsport, PA. From letter to Committee on Education and Labor, 5/4/92

MATRIX:
JFF's National Youth Apprenticeship Sites

MATRIX:
U.S. Department of Labor National Youth Apprenticeship Demonstration Grantees

Jobs for the Future • National Youth Apprenticeship Initiative Sites

Name of Site	Managing Agency	Industry	Major Employers	Schools	Model	Student Enrollment
Craftsmanship 2000 Tulsa, OK	Craftsmanship 2000/Tulsa Chamber of Commerce	Metalworking	American Airlines Hilti, Inc. Baker Oil Tools Webco Industries Yuba Heat Transfer Public Service Co. of Oklahoma	Tulsa County Vocational-Technical School; Tulsa Junior College	2+2 Youth Apprenticeship	12 students admitted per year-- will grow to 48 (Program in first year)
Pennsylvania Youth Apprenticeship Program Six sites across state	Regional Industrial Resource Centers (IRC's)/Office of Technology Development	Metalworking	Statewide consortium of 76 metalworking employers in four regions including: Pittsburgh; Philadelphia (2); Williamsport; York-Lancaster.	Vocational schools in the five participating school districts Penn College of Technology	2 + 2 Youth Apprenticeship	100 students in grades 11 and 12 (Williamsport in year two all other sites in year one)
Pasadena Graphic Arts Academy Pasadena, CA	Pasadena Unified School District	Printing and Graphic Arts	Printing Industries Association of Southern California; California Offset Printing; Griffin Printing	Pasadena High School; Pasadena City College	High School Academy program expanding to 2 + 2 Youth Apprenticeship Model	150 students in grades 10, 11, 12. Work-based learning under development. (Program in year two)
Pickens County Youth Apprenticeship Program Easley, SC	Pickens County School District	Electronics	Ryobi Motor Products Ahlstrom Pumps NCR, Inc. Blue Ridge Electric	Liberty High D.W. Daniel High Easley High Pickens High Tri-County Technical College	4 + 2 Youth Apprenticeship	5 students enrolled in the pilot year program (Program in year one)

Name of Site	Managing Agency	Industry	Major Employers	Schools	Model	Student Enrollment
Project ProTech Boston, MA	Boston Private Industry Council	Allied Health Careers	Brigham and Women's Hospital; New England Deaconess Hospital; New England Medical Center; Boston City Hospital; St. Elizabeth Hospital; New England Baptist Hospital; Massachusetts General Hospital	Boston High Brighton High English High Bunker Hill Community College	2 + 2 Youth Apprenticeship Model	115 students in grades ll and 12 (Program in year two)
Oakland Health and BioScience Academy Oakland, CA	Oakland Unified School District Magnet/Academy Office	Allied Health and BioScience	Kaiser Permanente Highland Hospital West Oakland Medical Center	Oakland Technical High School Peralta Community Colleges	High School Academy expanding to 2 + 2 Youth Apprenticeship Model	150 students in grades 10, 11 and 12. Eighty internships slots with participating employers secured. (Program in year seven)
Health Occupations Program Kalamazoo County, MI	Education for Employment, Kalamazoo Valley Vocational Consortium	Health Careers	Bronson Methodist Hospital Borgess Medical Center	Eleven Area High Schools Kalamazoo Community College	Area Vocational Program moving toward 2 + 2 Youth Apprenticeship	107 students enrolled in grades 11,12,13 (Program in year three)
Cornell Youth Apprenticeship Demonstration Project Broome County, NY	Cornell University and Cornell Cooperative Extension in Broome County	Health Care; Office Administration and Technology; Manufacturing and Engineering Technology	Anitec Raymond Corp. IBM Security Mutual Life Insurance United Health Services Hospital Lourdes Hospital	Binghamton High; Susquehana Valley High; Union-Endicott High; Whitney Point High; Greene High; Windsor High Broome Community College	Youth Apprenticeship in last two years of high school moving toward 2+2 Model	40 students enrolled in grades 11 and 12 (Program in year two)

Jobs for the Future • National Youth Apprenticeship Initiative Sites

Name of Site	Managing Agency	Industry	Major Employers	Schools	Model	Student Enrollment
Roosevelt Renaissance 2000 Portland Oregon	Roosevelt High School	Business and Information Science; Health and Human Services; Manufacturing Technology and Engineering; Natural Science and Resources; Government and Public Service; Trade and Tourism	Wacker Siltronic In Focus Systems Sisters of Providence Hospital Electrician's Union Portland General Electric Portland Public Schools Legacy Health Systems	Roosevelt High Portland Community College Portland State University	High School Restructuring along Career Pathways with Youth Apprenticeship as intensive option for juniors and seniors	Program began this year with 9th graders. All juniors and senior will have work-based learning experience which is in developmental phase.
Careers in Education Cambridge, MA	Rindge School of Technical Arts	Education	Cambridge Public Schools	Rindge School of Technical Arts Lesley College	Comprehensive Vocational Education Restructuring to include Youth Apprenticeship - moving toward 2 + 4 Model	16 students enrolled in grades 11 and 12 (Program in year two)

U.S. Department of Labor • National Youth Apprenticeship Demonstration Grantees

Name of Site	Industry	Major Employers	Schools	Model	# Apprentices
Seminole County School District/Siemens Stromberg Carlson, Sanford, FL	**Telecommunications/ Electronics (test technicians, installation technicians, production operators)**	Siemens Stromberg-Carlson	2 high schools; community college	Converting tech-prep to youth apprenticeship	20 apprentices annually
Middle Georgia Technical Institute, Warner Robins, GA	Aerospace (aerospace structural technicians)	Boeing, McDonnell-Douglas, Northrop	3 high schools; 3 postsecondary technical institutes	Implementing tech-prep through a youth apprenticeship model	20 youth apprentices annually
Toledo Private Industry Council, Toledo, OH	Industrial Automation (CAD-CAM), Health Care, Insurance, Building/Carpentry	Toledo Hospital, DANA, Abbott Tool	3 high schools in Toledo school system	Converting cooperative education to youth apprenticeship	60 students annually
OaklandWorks, Oakland, CA	Law and Government, Health/BioScience, Media and Communications, and Computer Technology	Kennedy & Wamman; Kaiser Permanente; Cox Broadcasting; TechMat, Inc.	4 academies within Oakland Unified School District	Expanding youth apprenticeship to new academies	200 student apprentices annually
Project ProTech--Financial Services, Boston, MA	Financial Services	Bank of Boston, State Street Bank, Fleet Services, Federal Reserve Bank of Boston, John Hancock Financial Services, Liberty Mutual Insurance Company	3 high schools in Boston Public School System	2+2 youth apprenticeship model	75 students annually
Gwinnett County Youth Apprenticeship Program, Lawrenceville, GA	Manufacturing/engineering tech/Health care	None specified	3 high schools; one postsecondary technical school	Implementation of youth apprenticeship through a tech-prep model	75 students annually

U.S. Department of Labor • National Youth Apprenticeship Demonstration Grantees

YAP Site	Industry	Major Employers	Schools	Model	# Apprentices
Illinois State Board of Education	Manufacturing and Food Service	None specified	High schools in three Illinois locations (Senn Metropolitan Academy in Chicago, Harlem High School in Rockford, and North Greene High School in White Hall)	Conversion of tech-prep into youth apprenticeship model	50 youth apprentices annually
Craftsmanship 2000, Tulsa, OK	Metalworking	Local metalworking industry	Not specified	Youth apprenticeship model	16 apprentices annually
Scripps Ranch High School, San Diego, CA	Engineering/Technology/ Design; Business; Biotechnology	None specified	Single high school, to be designed around youth apprenticeship approach	Youth apprenticeship model	1,500 students per year, beginning in 1993
Manufacturing Technology Partnership, Flint, MI	Automotive	United Auto Workers, Flint Truck and Bus Metal Fabrication (General Motors)	Not specified	Youth apprenticeship model	50 women and minorities annually

Jobs for the Future Youth Apprenticeship Sites

Careers in Education
Cambridge, MA
Number of enrollees for 1992: 16
Start date of program: Fall, 1991
Target occupation: teaching
Participating educational institutions: Cambridge Rindge and Latin High School
Lesley College
Five Cambridge elementary schools

The Cambridge-Lesley Careers in Education Program is a new program designed to interest young people, particularly minorities, in teaching and education careers. The program was designed by Lesley College - an established teacher education institution with a history of collaboration with Cambridge schools - and the Rindge School of Technical Arts, the innovative vocational program of the city's high school that is creating new ways to integrate vocational and academic education. It is one of several work-based learning/youth apprenticeship programs that are part of the Rindge program for restructuring high school vocational education.

Now in its second year, 16 juniors and seniors from Rindge develop teaching experience in one of five Cambridge elementary schools where they work alongside a certified classroom teacher two mornings each week. Through the field placement, students have the opportunity to begin working in classrooms under the guidance of both an on-the-job supervisor and a program mentor. Student apprentices also meet regularly with Lesley College juniors and seniors doing fieldwork in Cambridge schools, who serve as mentors to the high school participants. An innovative component of the program is a daily extended seminar co-taught by Rindge teachers and Lesley College faculty that enables participants to reflect on their teaching experience in a structured and multi-disciplinary way.

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Cornell Youth Apprenticeship Demonstration Project
Broome County, NY
Number of enrollees for 1992: Approximately 40
Start date of program: Fall, 1991
Target occupations: health care, office administration and technology, manufacturing and engineering technology
Participating educational institutions: Cornell Cooperative Extension of Broome County
Six area high schools

Cornell's Youth Apprenticeship Demonstration Project is a work-based learning program for high school juniors and seniors. A research and development program of Cornell University, the project is located in and around the city of Binghamton NY. The program currently enrolls 40 students from six school systems in newly-created youth apprenticeships in manufacturing and engineering technology, health care, and administration and office technology. Students spend 10-20 hours per week, including

summers, in supervised, paid work experiences with one of six participating employers. Cornell's Youth apnd Work Program administers the pilot project, developing the program, tending to its daily operation and conducting research that can foster the creation of a nationwide system for young people who do not graduate from four-year colleges. Successful program graduates will have acquired a high school diploma, an associate's degree, and expert job skills derived from extensive work experience. Although the program has not yet formalized a 2+2 structure, Broome Community College is involved as an active partner in the evolution of the program.

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Craftsmanship 2000
Tulsa, OK
Number of enrollees for 1992: 20
Start date of program: September, 1990
Target occupations: metalworking
Participating educational institutions: Tulsa Public Schools
Tulsa County Vo-Tech
Tulsa Junior College

Craftsmanship 2000 is a four-year youth apprenticeship program in metalworking sponsored by local industry, Tulsa Public Schools, Tulsa County Area Vo-Tech, Tulsa Junior College, and the Metropolitan Chamber of Commerce. An employer-driven program, Craftsmanship is part of the local industry's response to its need for skilled workers. Participating firms include: American Airlines, Hilti, and five other metalworking firms. The program is administered by a non-profit entity created by the Chamber of Commerce. Youth apprentices are employees of and are paid by this entity.

In August 1992, the first cohort of sixteen students entered the program. They are paid a stipend throughout the year, though they are in classes full-time at the vo-tech school in the first two years of the program and are working in firms only during the summer. During their summer work experience, industry trainers test the youth apprentices in real work situations on the material they were to have mastered during the school year.

Successful students will be awarded a high-school diploma from their sending high school after two years and up to 25 credit hours from Tulsa Junior College. Upon program completion, apprentices will be awarded a certification of occupational skills that will qualify them for skilled employment in the metalworking industry.

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Health Occupations Program
Kalamazoo County, MI
Number of enrollees for 1992: 107
Start date of program: September, 1989
Target occupations: health careers
Participating educational institutions: Kalamazoo Valley Independent School District
Kalamazoo Valley Community College
Eleven area high schools

The Health Occupations Program is administered by two Kalamazoo Valley hospitals and an agency, called Education for Employment, which represents the Kalamazoo County consortium of area high schools and post-secondary institutions. Grade 11 and 12 students from eleven comprehensive high schools in Kalamazoo County participate in the program. A 13th grade component was added in September 1992.

The program started because of a need to reform a vocational nurse's aide program that was having trouble attracting students. The program's focus was changed to cover all health occupations and the location was changed from a local high school to the hospital setting. Now, the Health Occupations Program caters to all students—from special needs to honors students. The program offers courses and pre-professional training and career orientation for young people who want to be anything from nurse's aides to physicians. The program supports a variety of pathways after graduation. Some students graduate and work full-time in a health care facility, others combine college with on-the-job training at the hospital, and others go to two-year or four-year colleges full-time.

Students leave their own high schools for two hours each day to participate in the Health Occupations program, which is based at one of the two participating hospitals. The eleven participating high schools have worked out schedules that allow students to meet all of their graduation requirements and still attend courses and participate in work experience at hospitals and other community health care facilities.

Health Occupations I, available as an elective to both 11th and 12th graders, introduces students to health care, placing an emphasis on job shadowing and on core skills and knowledge applicable to many health care disciplines. In Health Occupations II, students choose one occupational area for an externship in a hospital department, medical clinic, or other health care setting. An individual training plan, developed by the health occupations instructor in consultation with the clinical supervisor and student, spells out the objectives, goals, and specific tasks of the placement. Students also earn up to five hours of community college credit in related classes.

Upon completion of Health Occupations II externships, a certificate of initial mastery of job-specific skills, correlated to the student's work experience, is granted. Upon completion of Health Occupations II training and related course work, articulated credits at post-secondary partner institutions are granted. The program recently added Health Occupations III, which provides support and guidance to the post-secondary student employed in a health-related job and/or pursuing advanced training and education.

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Oakland Health and Bioscience Academy
Oakland, CA
Number of enrollees for 1992: Approximately 150-175
Start date of program: 1985
Target occupations: health, medical, biotechnology, life science (environmental, forestry, etc.)
Participating educational institutions: Oakland Health and Bioscience Academy/
Oakland Unified School District
Samuel Merritt College
California State University-Hayward
Peralta Community Colleges
University of California-Berkeley
St. Mary's College
University of San Francisco
State Department of Education-Health Careers Division
California Academic Partnership Program

The Oakland Health Academy began in 1985 in response to the critical need to increase the number of underrepresented minority students well prepared both for skilled entry-level jobs in the health/science field and for post secondary education. The Oakland Health Academy operates as a school-within-a-school at Oakland Technical High School. The goal of the Academy is to expose at-risk students to diverse career opportunities in the areas of health and bioscience and to nurture their interest in a career in these fields. The program accomodates 175 students (50-60 in each of grades 10 through 12). The student body is 70 percent African-American.

The program prepares students academically and technically for post secondary education or skilled hospital/lab jobs through integrated academic and lab courses with a health/bioscience focus, a hands-on learning approach, exposure to career information and knowledge through field trips and guest speakers, paid career internships during the summer after junior year and the second semester of senior year, and assistance with job and college applications.

Several local hospitals and bioscience industry employers provide the Academy with mentoring, student internship placements and part-time jobs, assistance with curriculum and staff development, financial support, and equipment. These employers include Kaiser Permanente Hospital, Children's Hospital, Highland Hospital, West Oakland Health Center, Piedmont Gardens (Senior Care Facility), Merritt-Peralta-Providence Medical Center, Lawrence Berkeley Laboratories, Bay Area Bioscience Center, Hillcrest Clinic, American Red Cross, the Human Genome Project and others.

During grades 10 and 11 students do volunteer work in hospitals and community centers after school and weekends for approximately 75 hours per semester. Between grades 11 and 12, summer internships are arranged for students, usually in local hospitals or laboratories. In grade 12, many students work in paid clinical placements and/or in community-based senior health projects. About 25 students are participating this year in a work-based learning program at Highland Hospital. The Academy would like to see structured work-basedlearning become the heart of its curriculum and is working with its partners to move in this direction.

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Pasadena Graphic Arts Academy, Pasadena High School
Pasadena, CA
Number of enrollees for 1992: 100
Start date of program: September 1991.
Target occupations: administrative and clerical positions; production support positions; design, paste-up and typesetting; scanner and camera operators; platemaking and proofing; press operators; cutter and folder operators; printing management; printing sales
Participating educational institutions: Pasadena City College
Los Angeles County Office of Education
California State University, Los Angeles

The Pasadena Graphic Arts Academy, now in its second year, is a school-within-a-school that combines academic instruction and training designed to prepare students for careers in the Graphic Arts field. Students enter the Academy in the sophomore year and spend three years together in morning block scheduled classes. The Academy is open to all students in the Pasadena School District.

The Graphic Arts Academy was spearheaded by the Printing Industries Association of America - Southern California. Industry provides mentors and paid summer internships, monthly field trips and speakers as well as job placement opportunities for students upon graduation. Industry partners have contributed up-to-date equipment for the Graphic Arts lab where students do technical projects.

Most classes and all lab sessions in the Graphic Arts Academy are small and use cooperative learning groups and mastery learning techiquest (e.g. frequent teacher-student feedback and portolio assignments). Classes are block scheduled and Academy students spend the first four hours of the day together rotating between academic and lab courses.

The sophomore year in the academy is primarily for establishing strong academic and research skills. Students are exposed to a variety of different jobs and career paths in the graphic arts industry through field trips and guest speakers. Students take a two semester lab course in the sophomore year called Graphic Arts Technology I & 2 in addition to their academic courses.In addition to these requirements, Academy students are required to perform 100 hours of graphic arts community service after school during the sophomore year.

During the junior year, students continue with their academic course work and complete another two semester lab - Graphic Arts Technology 3 & 4. Students are also responsible for running a printing business after school in which they have responsibility in all areas of production. During the summer between junior and senior year, students work as paid interns at local graphic arts and printing firms.

During the senior year, students complete their academic course work at Pasadena High and take Graphic Arts lab courses at Pasadena Community College. Students select from courses in computer typesetting, lithographic preparation, management, lithographic press operation and screen printing at PCC. Students who graduate from the Graphic Arts Academy receive a specialized high school diploma. Upon graduation, students have received up to one year of postsecondary credit from Pasadena Community College and need only 30 more units to receive an associates degree.

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Pennsylvania Youth Apprenticeship Program
Sites in Pittsburgh, Philadelphia, Williamsport, and Lancaster, PA
Number of enrollees for 1992: Approximately 110 (about 30 each in 4 regions)
Start date of program: September, 1991
Target occupations: metalworking
Participating educational institutions: Six high schools across Pennsylvania
Community colleges and four-year universities across Pennsylvania

The Pennsylvania Youth Apprenticeship Program is a state-wide initiative designed to train high school students for high skill, high wage careers in the metalworking industry. Developed in 1990, PYAP was one of the first recipients of a Department of Labor school-to-work transition demonstration grant. In 1991, PYAP was piloted in Lycoming County with 12 students who were provided employment and training at six local firms. In the fall of 1992, the program was expanded to five other sites: York, Lancaster, Philadelphia, Western Montgomery County, and Pittsburgh. In this second year of the program, approximately 105 students are enrolled in youth apprenticeships with 76 employers. (In Lycoming County, a youth apprenticeship program in allied health careers was established this year with fifteen students.)

The program is administered by the Pennsylvania Department of Education and is coordinated in each region through local Industrial Resource Centers. In each region, the IRC has set up a strong stakeholder group that represents the employer community and its needs.

PYAP is an ambitious project that is noteworthy for its statewide scope and for its creative project-based curriculum, which was designed by a team of teachers from the Pittsburgh area who work with the University of Pittsburgh's Learning Research and Development Center.

Graduates from the program will be able to attain well-paying jobs in the metalworking industry and can further their training to become tool and die makers. PYAP is working to make sure that graduates will be able to attain an associate degree (with employer tuition subsidy) an industry-recognized cskill redential, and an opportunity to continue in a registered apprenticeship.

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Pickens County Youth Apprenticeship Initiative
Easley, SC
Number of enrollees for 1992: 5
Start date of program: August, 1992
Target occupations: electronics
Participating educational institutions: School District of Pickens County
Tri-County Technical College

Pickens County Youth Apprenticeship Initiative is designed to prepare high school graduates for careers in the electronics industry. Coordinated by the school district, the program attempts to

expand the educational opportunities available to non-baccalaureate bound students by increasing their access to and preparation for postsecondary programs at the associate degree level.

The program builds upon the statewide Tech Prep model by enabling students to learn on the job as well as in school. The program was developed in 1991 as a result of the vocational program improvement efforts and work of the PACE Consortium at Tri-County Technical College - designed to assist local school districts in the areas of tech prep, postsecondary articulation and preparation for work.

In this start-up year there are five students in the program, working with four employers that include NCR and Ryobi Motor Products. The Career Center, a regional vocational school, is the hub of the program and plans are underway for expansion into other occupations. Graduates will earn a high school diploma, vocational certificate and an associate degree, as well as valuable experience in the workplace as a paid employee benefiting from the guidance of a trained mentor.

This program, though still a small pilot, is an example of the growing interest in marrying Tech Prep and Youth Apprenticeship, bringing the applied academics focus and the 2+2 strcuture of Tech Prep together with the workplace learning and paid work component of youth apprenticeship.

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Project ProTech—Health Care
Boston, MA
Number of enrollees for 1992: 115 juniors and seniors
Start date of program: September, 1991
Target occupations: allied health careers
Participating educational institutions: Three Boston high schools

Project ProTech combines classroom learning, clinical internships, and work experience in a 2+2 youth apprenticeship model that links the last two years of high school with two years of community college. Students will graduate from the four-year program with an Associate degree and professional certification in one of the following technical occupations: radiologic technologist, nuclear medicine technologist, physical therapy assistant, occupational therapy assistant, medical laboratory technician, medical secretary. Students who decide not to pursue an Associate degree can earn certification in occupations including: EEG technician, EKG technician, operating room technician, histology technician, emergency medical technician.

Project ProTech is a collaborative effort of the Boston Private Industry Council (PIC) and its partners—Boston City Hospital, Brigham and Women's Hospital, Massachusetts General Hospital, New England Baptist Hospital, New England Deaconess Hospital, New England Medical Center, St. Elizabeth's Hospital, the Boston Public Schools, and Jobs for the Future.

During their junior year, students from three participating high schools explore career options and the field of health care through a series of introductory seminars and clinical rotations at the hospital. Students also begin part-time employment. During the second year, the hospital-based training, both paid and unpaid, becomes more occupation-specific. Upon graduating high school, students will split their day between community college courses and hospital-based training in their specialty.

Beginning with after-school and summer jobs, paid employment assumes increasing importance in the training experience as students progress through the program. By the third year, students will be employed in training positions related to their occupational choice.

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Roosevelt Renaissance 2000
Portland, OR
Number of enrollees for 1992: 350
Start date of program: September, 1992
Target occupations: business informations systems, health and human services, manufacturing technology
Participating educational institutions: Roosevelt High School
Portland Community College
Portland State University

Roosevelt Renaissance 2000 (RR2000) is a comprehensive high school restructuring effort designed to prepare students for an easier school-to-work transition upon high school graduation. RR2000 will transform the current academic curriculum into an applied academic curriculum that integrates classroom and work-based learning through career pathways, applied academics, and on-the-job work experiences. Roosevelt Renaissance 2000 is designed to:

- Integrate general studies with professional technical career training;
- Impement a curriculum that allows students to begin preparing for employment immediately after high school graduation;
- Design a curriulum that includes a Certificate of Initial Mastery based on competency; and
- Actively involve employers in the education and training of students.

Beginning next fall, all students attending Roosevelt will select a career pathway that structures their high school program. Career pathways include business information systems, health and human services, manufacturing technology and engineering, professional, public, and commercial services, and trade and tourism. Students will take applied academic courses that relate course work and school projects to their chosen career path. In addition, students will participate in a number of work-related activities throughout their high school years including career-oriented field trips, job shadowing activities, mentoring programs, and structured work experiences with local employers. Each student will be required to maintain a portfolio of self-assessment of job shadowing, informational interviews, internships, and summer jobs.

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U.S. Department of Labor
National Youth Apprenticeship Demonstration Grantees

Last November, the U.S. Department of Labor awarded grants to ten organizations across the country to support the development of a nationwide system of Youth Apprenticeship. This $11.7 million program is expected to fundamentally change the way U.S. students learn basic workplace skills and prepare to enter the work force. The ten organizations were awarded two-year grants to explore ways of strengthening the transition of America's youth from school to work by redesigning school curricula so that students learn work-related subjects in a practical context and noncollege bound students are better prepared to enter the work force. The Department's $2.5 million in seed money is being leveraged into an $11.7 million program because $9.2 million is being provided by other organizations. Demonstration sites vary according to program design, occupations and stage of development. Some are in the planning and development stage, others in the implementation stage and yet others are existing youth apprenticeship programs which will expand in other industries, student outreach, or refine curriculum development. Following is a description of each site.

Craftsmanship 2000 The Craftsmanship 2000 Apprenticeship Program (CAP) is a four year outcome based apprenticeship program that begins during a student's junior year of high school and culminates with the students' graduation from junior college. The program is existing currently and has high levels of business support, including employer pay for learning at Technical Center and work-site. Students in the program attend school eight hours a day, 220 days a year. Under the grant, this project will work closely with schools to develop work-related, integrated curricula.
Contact: *Mr. A. Wayne Rowley, Executive Director, Metro. Tulsa Chamber of Commerce, 616 South Boston, Tulsa, OK 74119; Telephone (918) 585-1201, Fax (918) 585-8016.*

Gwinnett County Youth Apprenticeship Program The Gwinnett Youth Apprenticeship Program will advance the newly adopted Georgia Apprenticeship Initiative by developing and piloting a comprehensive, multi-business (small and large) program in three school sites representative of urban, suburban and rural communities, with occupational focus on manufacturing, engineering technology, administration and health care. Students' learning experience combines a special School Apprenticeship class with vocational instruction and paid work-site learning. The schools are each working to create interdisciplinary instruction and greater curricular linkages between instruction, the workplace and adult roles.
Contact: *Roger D. Sartor, Project Director, Gwinnett County Youth Apprenticeship, 610 West Crogan Street, Lawrenceville, GA 30245; Telephone (404) 822-6421.*

Illinois Youth Apprenticeship Program The Illinois Youth Apprenticeship Program is a state-wide effort to create youth apprenticeship built on current Tech Prep initiatives to be piloted at three sites. Labor market projections and local business consultations have led the project to focus on manufacturing and food service with later expansion to six sites in agriculture, business management and health. In the Illinois project twenty percent of a youth apprentice's time will be spent in a work-site learning experience in the first year (11th grade); and fifty percent will be spent at the work-site in later years. The program is linked to community college, where apprentices will go on for an Associate of Applied Science degree.
Contact: *Fran Beauman, Project Manager, Illinois State Board of Education, 100 N. 1st Street, Springfield, IL 62777; Telephone (217) 782-4620, Fax (217) 782-0679.*

Manufacturing Technology Partnership Program The Manufacturing Technology Partnership Program (MTP) is a two year old youth apprenticeship between the United Auto Workers, General Motors, community colleges, a public job training agency, a community business group, and a public vocational high school. This effort focuses primarily on preparing women and minority high school students to become future skilled trade workers in the automotive industry at General Motors. Grant funds will assist in curriculum development to extensively modify traditional academic and vocational education based on workplace requirements and in expanding to more students and employers. Students participating in the 2+2 Youth Apprenticeship Program will receive academic instruction at the high school, vocational education at the Skill and Technical Center and work-site experience at the workplace, where they will gain insight into the tasks and requirements of several skilled trade areas.
Contact: Susan Richvalsky, Business/Industry Liaison, Flint Board of Education, GASC Technology Center, G-5081 Torrey Road, Flint, Mich. 48507; Telephone (313) 760-1444, Fax (313) 760-7759.

Middle Georgia Technical Institute The project is a systematic mix of academic and technical instruction in both secondary and post-secondary schools, combined with work-based learning for students, directed at preparing youth for quality professional and technical employment. The program is at least three years long and will be implemented in three high schools and three post-secondary technical institutes. Students in 11–12th grades will be selected from the participating school districts and will follow a Tech Prep curriculum in Aerospace Manufacturing Technology linked to work-based instruction at the Technical Institute that leads to certification as an Aircraft Structural Specialist. The students' third year will be composed of continued school and work-based learning and include full-time paid structured work-site learning at the workplace. Students have the option of continuing in the program after their third year if they choose to pursue an Associate's of Applied Science Degree.
Contact: Billy Edenfield, Project Director, Middle Georgia Technical Institute, 1311 Corder Road, Warner Robins, GA 31088; Telephone (912) 929-6800, Fax (912) 929-6835.

Project ProTech–Financial Services Participants will combine school and work-based classroom instruction, work rotations, mentorships and internships in banks, financial management firms and insurance companies, work experience in financial service occupations, and post-secondary education to prepare for the transition from school to skilled employment in the financial services industry. ProTech's program design provides for teacher institutes and externships, basic skills assessment and remediation, and tuition support for additional post-secondary education through permanent placement with employers who offer tuition assistance benefits.
Contact: Lois Ann Porter, Project Director, The Boston Private Industry Council, 2 Oliver St., Boston, MA 02109; Telephone (617) 423-3755, Fax (617) 423-1041.

OaklandWorks OaklandWorks proposes to extend the current system of Academies to a comprehensive and coordinated approach that prepares Oakland students for the world of work by strengthening the partnerships between school and industry. The existing California Partnership Academy model offers students a comprehensive school-within-a-school program based on a single career area, combining academic and vocational learning, career awareness and counseling, work-based learning and paid structured work-site learning in a supportive atmosphere. The project focuses on four experienced and well-established academy programs at four different school sites. The Youth Apprenticeship demonstration project will comprise Law and Government, Health and BioScience, Media and Communication, and Computer Technology. Committed teachers, administrators and industry representatives will be developing curriculum to extend the work-based and work-site learning elements of the project.
Contact: Allie Whitehurst-Gordon, Manager, Magnet Programs, Oakland Unified School District, 1025 Second Avenue, Oakland, CA 94606; Telephone (510) 836-8614, Fax (510) 836-8607.

Seminole County School District/Siemens Stromberg-Carlson The partnership focuses on strengthening and developing a relationship that encourages high levels of proficiency in the classroom, increases the skills of technical employees, improves productivity and quality of work. Participating high school students will be selected from the school district's Tech Prep program to participate in the youth apprenticeship program and will be encouraged to stay in school, become more productive and think in terms of career opportunities in the field of Electronics within the Telecommunication Industry. Students will receive core and applied academic curricula from the existing Tech Prep program and paid structured work-site learning at Siemens Stromberg-Carlson. Siemens-Carlson will also provide the opportunity for continued skills upgrading through successive training beyond high school at the Seminole Community College leading to an Associates Degree in Science.
Contact: *Bettie Hogle, Project Director, Seminole County School District/Siemens Stromberg-Carlson, 1211 Mellonville Avenue, Sanford, FL 32711; Telephone (407) 322-1252 ext. 240, Fax (407) 322-1252 ext. 426.*

Scripps Ranch High School This project offers a unique opportunity to design an innovative, high performance school which will integrate academic and vocational curriculum, prepare students for the technological workplace, ensure participation of business, industry and community in school-to-work transition activities. It is a comprehensive single school currently begin built. The first year of the grant will be spent in planning and curriculum development and in September 1993 the school will open to 1500 students who will receive high-level, rigorous curriculum. In grades 9 and 10 students will participate in an academic foundation which provides a strong core curriculum that integrates themes and concepts both within and across disciplines. In grades 11 and 12, students will decide on "program majors" and choose an organized program around career paths in Engineering/Technology/Design; Business; Biotechnology that focus on combined academic, applied academic, field experience and includes paid structured worksite learning.
Contact: *Barbara K. Brooks, Project Director, c/o Mission Beach Center, 818 Santa Barbara Court, San Diego, CA 92109; Telephone (619) 621-9020, Fax (619) 488-3925.*

Toledo Private Industry Council The Private Industry Council's objective is to elevate a currently operating cooperative education program to a full scale Youth Apprenticeship Program. Students in three high schools will combine work and learning with a focus on Industrial Automation CAD-CAM, Health Care (Medical and Dental Assistant), Building/Carpentry or Insurance Claims Processing. The work-based learning will be based on comprehensive, employer-certified competencies for the occupation, developed by the Ohio Competency Analysis Profile (OCAP). Each occupational area will be staffed with an occupational planning team to develop curricula. An occupational specialist will ensure that applied academics, work-based learning and paid structured work-site learning all work towards providing the youth apprentices with as many competencies in the OCAP.
Contact: *Mr. Robert Roman, Director, Youth Apprenticeship Program, Toledo Private Industry Council, 331 14th Street, Toledo, OH 43624; Telephone: (419) 244-5900, Fax: (419) 241-7865.*

The Department of Labor's Youth Apprenticeship initiative was launched in early 1990, when the Secretary awarded two-year grants to six organizations (for a total of 9 sites) to explore ways of redesigning school curricula so that students learn job-related subjects in a practical context and noncollege bound students obtain the skills necessary to enter the workforce. In September 1992 upon the completion of the two year grant, five of the 9 local demonstration sites were extended for one more year of program operation. Description of those sites follows.

MechTech, Inc. Project MechTech, in metropolitan Baltimore, will prepare secondary students for careers in manufacturing technology using a combination of structured workplace training and technical education in a community college. It features a rotation of trainees among participating employers to provide a variety of work experiences, and a structure for giving successful participants credentials that combine a college associate degree with certification of competencies gained in a comprehensive work-based training program. Students are recruited into a 2+2 program of combined academic, vocational and work-site learning during high school and continues with advanced standing into community college and into registered apprenticeship.
Contact: *Mr. Bob Fiaella, Director, MechTech, Inc., 800 S. Rolling Road, Baltimore, MD 21228; Telephone: (410) 455-4548, Fax: (410) 455-4952*

Pennsylvania Youth Apprenticeship Program See Jobs for the Future Site Profiles

Project ProTech–Health Care, Boston, Massachusetts See Jobs for the Future Site Profiles

The Quality Connection, DuPage County, Illinois This project prepares participants as electronics/appliance technicians at Sears, Roebuck & Co. Through school-based courses and work experience at Sears, students learn basic skills, electronics literacy, and technical knowledge and expertise. The technical curriculum has been developed jointly by the local partnership, Sears and the high schools. Students will receive a structured employment experience full-time between the junior and senior years and part-time during these school years. 11th and 12th graders take courses at 22 home schools in the morning and travel to votech school for special electronics class. The project will result in full-time employment and completion of training upon high school graduation.
Contact: *Ms. Tana Petrich, Regional Manager, National Alliance of Business, 11 E. Adams, #1008, Chicago, IL 60603; Telephone: (312) 341-9766, Fax: (312) 341-3491.*

Workforce LA Youth Academy The Workforce LA Youth Academy focuses on links with three major employers and occupational groups in the Los Angeles—Pacific Bell (telecommunications), Security Pacific Corporation (banking services), and the City of Los Angeles (public service). The operational models for the three projects are similar in that each is established as a partnership between the firm and the Los Angeles Unified School District. The programs feature a full-time academic program with 12-30 hours of work experience. Academics credit will be granted for work time, and some work experience may apply towards college credit. 11th and 12th graders spend 5 mornings a week at their home schools and 4 afternoons a week at work-sites. One afternoon a week is spent at the Regional Occupation Program center.

Students participation progresses according to educational grade level. In 9th grade, students are part of a "compact" which reinforces the importance of school by rewarding performance with summer jobs; in 10th grade, in-school work-maturity instruction is added; in11th, work experiences are more career oriented and are accompanied by in-school training; and the senior year is an opportunity for students to make the transition to college, employment or further training. The extension grant is focussed on more curriculum integration with selected home high schools.
Contact: *Mr. James Konantz, Project Director, Los Angeles Unified School District, 644 W. 17th Street, Room 202, Los Angeles, CA 90015; Telephone: (213) 765-3494, Fax: (213) 744-0534.*

Progress Report on Boston's Project ProTech

The following pages reproduce the Executive Summary of an eighteen-month formative evaluation of Project ProTech, conducted by Sue Goldberger of Jobs for the Future for the Boston Private Industry Council, which manages this innovative and impressive effort.

Project ProTech is a youth apprenticeship program in the allied health occupations that is the product of a unique partnership between seven Boston hospitals, three high schools, and the Boston Private Industry Council. Now in its second year, Project ProTech involves 115 high school juniors and seniors in a novel educational program linking school and work and bridging high school and post-secondary education.

Project ProTech is one of the most well-developed and ambitious attempts to design and implement a youth apprenticeship model in the United States. An extension of the business-school partnerships begun in the early 1980s under the Boston Compact, Project ProTech is the product of phenomenal investments of time and money by the seven participating hospitals and their leadership.

The subject of a dozen major national news articles in the last year, including a front page story in the *New York Times*, Project ProTech is one of the most closely watched of a group of new initiaitives to link school and work for the benefit of U.S. young people.

The evaluation conducted by JFF was prepared for the program sponsor, the Boston Private Industry Council. Its primary goal was to provide program planners with the information they needed to assess and improve the performance of program components for the second and successive years. As such, it was intended for an internal audience.

However, the early lessons from the experience of Project ProTech's employers, schools, students, and the PIC are so rich and instructive that JFF and the PIC decided to release this summary of key issues and findings for broader distribution. We hope that this documentation of the start-up of Project ProTech, and of its early accomplishments and challenges, will encourage wide replication of ProTech's best features and be a valuable guide for other fledgling youth apprenticeship efforts.

In the coming year, the Private Industry Council will continue to refine and expand Project ProTech. At the same time, the PIC will launch a parallel program targeted to skilled entry-level career opportunities in the city's financial services industry. Jobs for the Future thanks the PIC and the participants in Project ProTech for their generosity in releasing this Executive Summary for external distribution. We salute all who have made Project ProTech the exciting model it is—and all who will be working to expand this model to other industry clusters in the city.

Appended to the Executive Summary are selected media clips on Project ProTech's first year and a half.

EXECUTIVE SUMMARY

Creating an American-Style Youth Apprenticeship Program: A Formative Evaluation of Boston's Project ProTech

Prepared for the Boston Private Industry Council
By Susan Goldberger

JOBS FOR THE FUTURE

February 1993

Executive Summary

In the fall of 1991, in Boston, 88 high school students entered Project ProTech, a newly created youth apprenticeship program in allied health careers. ProTech is a collaborative effort of the Boston Private Industry Council (PIC) and its partners — seven local hospitals, the Boston Public Schools, and Jobs for the Future. From the start, ProTech was conceived of as an experiment in youth apprenticeship, an educational approach that links school and work, high school and post-secondary education.

This report evaluates the beginnings of ProTech. The critical two years of planning and early implementation tell an important story of one program's efforts to adapt the principles of apprenticeship to the realities of the United States. It is our hope that this report not only contributes to ProTech's on-going refinement but also helps others implement similar programs throughout the country.

Project ProTech combines classroom learning, clinical internships, and work experience in a 2+2 youth apprenticeship model that connects the last two years of high school with at least two years of post-secondary education. Students will graduate from the four-year program with a degree and professional certification in a technical health care occupation.

ProTech targets the "neglected majority" of the high school student population —those likely to complete high school but not to pursue college-level training without a supported pathway. ProTech is designed to meet hospital needs for skilled technicians as well as student needs for an engaging, structured pathway from school to high-skilled employment. The program's goals are: 1) to prepare non-college bound students for high-skilled health care careers; 2) to enrich high school instruction in science and math through the development of project-based curricula which integrate learning at school and at the hospital; 3) to address pressing labor needs of the hospitals by producing skilled workers for occupations in short supply; and 4) to put in place the first component of a new, comprehensive school-to-work transition system for young people in Boston.

During their junior year, students from three participating high schools explore career options and the field of health care through a series of introductory seminars and clinical rotations at the hospital. Students also begin part-time employment. During the senior year, the part-time job becomes the focus of the hospital curriculum. Under the tutelage of hospital staff, seniors pursue their occupational interests and develop marketable skills while contributing as productive employees. Upon graduating high school, students split their day between post-secondary courses and hospital-based training in their specialty.

This progress report analyses key aspects of the program's formation, detailing lessons that can be learned from ProTech's initial design and early adjustments. It also offers recommendations for further improvement of the program.

I. The Partnership

The complexity and institutional interdependence of the youth apprenticeship model require that school and employer partners share equally governance and management of a new entity. This partnership depends on a commitment from employers to deliver high-quality training to young people at the workplace as well as a commitment from schools to modify curricula to complement work-based learning.

ProTech's beginning years exemplify how to secure commitment and active involvement from hospitals and their staffs. Not only have these partners invested themselves in development of the program, they have shown flexibility and persistence in their efforts to make the program better. ProTech has had a more difficult time bringing the schools in as "equal partners".

Lessons learned:

- **An intermediary organization can facilitate industry involvement.** One of the critical factors that contributes to ProTech's success in building a partnership with the hospital industry is the role played by the Boston Private Industry Council (PIC) as an intermediary organization. The hospitals trust the Boston PIC to represent their interests. The PIC also plays a key role coordinating and mediating between hospital partners.

- **Hospital-driven planning fortifies industry involvement.** Unlike typical school-industry partnerships, ProTech is an industry-driven program, initiated by hospital C.E.Os and designed by the hospitals to meet institutional needs. Through the Boston PIC, hospital partners developed an industry consensus on key design issues including target occupations and criteria for student selection.

- **School involvement on equal terms is critical.** In contrast to its effectiveness with the hospitals, the PIC was less successful in its initial efforts as a broker between hospital and school interests. The failure to include headmasters and lead teachers in early design decisions discouraged school investment in the program and led to goals for the school-based program that were unrealistic.

The second year of the program shows a marked improvement on this. Schools now have greater flexibility in program design as well as sufficient lead time to adjust class schedules and staffing. The program has also shifted more resources to the schools to help teachers adapt their instructional methods to the requirements of youth apprenticeship. Through week-long training institutes, regular workshops, and on-going support from curriculum specialists, teachers involved in ProTech are learning to design and deliver class lessons that integrate student learning at school and at work. The PIC is also providing a full-time project coordinator at each school.

Recommendation: Strengthen ownership of schools. Youth apprenticeship programs like ProTech demand that schools radically change the way they educate students. School district leaders must realign resources to support an integrated learning program. Headmasters must remake their schools to support new instructional methods and staff roles; teachers must fundamentally rethink their approach to education. If ProTech is to succeed, demands on schools to change will need to be balanced with a greater voice for school personnel in program design and governance. The Boston PIC has taken a number of steps to increase headmaster and teacher involvement in program decisions. The end goal must be to make the schools equal partners.

II. Learning Through Work

The reliance on work-based learning throughout the program is what distinguishes youth apprenticeship from other career-oriented programs. Youth apprenticeship places students in real work settings and builds learning sequences around the work experience. Apprenticeship methods of instruction, often misunderstood as narrow vocational training, recognize that students may learn academic concepts in a concrete work context better than they would in the classroom.

ProTech's work-based curriculum has rapidly evolved from classroom instruction to apprenticeship-style learning. In its initial design, ProTech students were taught in classrooms by hospital staff and went on clinical rotations to learn about hospitals and potential careers. Students were also given a part-time job that was not a formal part of their work-based learning. ProTech's partners quickly realized, however, that classroom learning was inefficient and less effective than on-the-job learning. In response, ProTech began to create a new curriculum that incorporated the basic elements of apprenticeship-style instruction.

ProTech's new work-based curriculum began in its second year. Juniors spend sixteen days at the hospital rotating through a number of different hospital departments. During rotations students learn technical and social aspects of ProTech's targeted careers through observation and hands-on activities. Hospital staff assigned to mentor the student during the half-day rotation follow a training plan which specifies student learning objectives and activities for that department. After the rotation, students discuss their experiences and impressions in a seminar.

Students begin paid employment in the second half of their junior year. In the senior year, the part-time job becomes the focus of the hospital curriculum. Under the tutelage of a expert, students pursue their occupational interests and develop marketable skills through hands-on learning activities.

Lessons learned:

- **Hospitals make their most efficient educational contribution through apprenticeship-style instruction.** Most students flourish on the job and in clinical rotations. These activities offer students a hands-on, personalized learning experience the classroom does not. This apprenticeship-style design makes the best use of what hospitals have to offer: consistent one-on-one instruction and support from a caring professional; the chance to learn and apply knowledge in context; and the chance to gain skills and self-confidence through productive work.

- **Hospitals can provide high-quality work experiences in which students learn and earn at the same time.** Most students reported that their first-year job placement far exceeded expectations. Students were given a great deal of responsibility and many opportunities to learn new skills in these work experiences. For example, four students were placed in clinical and research laboratories. By the middle of the year, these students were performing tasks ordinarily done by research assistants and laboratory technicians. During end-of-year interviews, job supervisors spoke with pride about the accomplishments of their students. Many reported that students were surprisingly adept at learning complicated technical skills and were making important contributions to production.

- **The quality of job placements makes a difference.** During the first year, the part-time job was not a formal part of the work-based curriculum. As a result, the quality and success of students' work experiences were uneven. While most students met or exceeded supervisors' expectations, some did not. In response, the second year design includes significant improvements. First, ProTech has hired an additional project coordinator whose responsibilities include supporting job supervisors and students at work. Second, ProTech now carefully screens potential job placements. Third, the student, job supervisor, project coordinator, and hospital coordinator meet to develop a learning plan for the student and to clarify the roles and expectations of each participant. Fourth, ProTech now provides on-site orientation and training to job supervisors and coaches.

- **Students need support at the workplace.** ProTech recognizes the importance of a network of supportive adults for students in their jobs. Evaluations of successful work-based learning programs testify to the power of linking students to caring adults who help them navigate the world of adult expectation, solve personal problems, explore personal and career options. The particularly stressful lives of ProTech students accentuate the need for adult support. In addition to the typical crises of adolescence, most ProTech students confront the burdens of poverty and racial discrimination. During its first year of operation, ProTech offered students a three-tiered support structure — project coordinators, hospital coordinators, job supervisors and coaches. Almost to a one, students interviewed about the program spoke with joy about friendships they had made and encouragement they had received from hospital and program staff.

Recommendation: Develop curriculum to support apprenticeship-style instruction at the hospital. ProTech has made great strides toward developing hands-on, apprenticeship-style instruction at the hospital. Learning plans are in place for junior year career exploration rotations. The challenge for the next year is to develop curriculum for the on-the-job apprenticeships, the main site for student learning at the hospital. Basic training plans should be developed for junior and senior year job placements that specify activities to be performed and competencies to be attained. The end goal should be a set of four-year training ladders, consisting of paid training positions, for ProTech occupations.

III. Integrating School and Work

Integration of learning at school and work is central to the youth apprenticeship design. This integration is fostered by a school-based curriculum which teaches academic concepts in the context of applications at the workplace. For example, students learn geometric laws of angles through calculation of correct body positions for x-ray procedures. By connecting learning at school and work, the relevance of academic concepts becomes apparent.

Youth apprenticeship also strives to break down artificial walls between vocational and academic instruction. The curriculum emphasizes mastery of broad competencies and includes instruction on practical job skills and on theories underlying practice. But the radical aim of youth apprenticeship is to remake classroom instruction in the image of apprenticeship, teaching higher order concepts as well as practical skills through hands-on, experienced-based approaches.

Lessons learned:

- **Youth apprenticeship requires a commitment from schools to change.** ProTech's first year efforts in schools encountered significant barriers. To implement youth apprenticeship, schools must fundamentally restructure their learning environment. Schools need to:

  - redesign course structures and schedules to accommodate off-site learning at workplaces and the grouping of apprentices in specially-designed classes;
  - develop applied, hands-on curricula which feature student work experiences as "text" to explore practical and theoretical questions;
  - redefine the role of teacher as coach, guiding student-directed projects and activities; and
  - overhaul administrative structures and practices to support the flow of information and ideas between school and worksite teaching staff.

- **Program design must include mechanisms to address obstacles to change within schools.** A number of weaknesses in program design and strategy contributed to lack of first-year progress in the schools. The initial program design and implementation process failed to:

  - **Recognize the importance of economies of scale.** ProTech's ninety available hospital placements were distributed among four schools, leaving no school with more than 25 eleventh-grade students in ProTech. That number proved too small to permit cost-effective clustering of ProTech students in special classes and made it difficult to generate teacher investment in the program.
  - **Promote teacher buy-in.** Because of delays in school selection and a preoccupation with building employer ownership of the program, headmasters and teachers were not given a voice in the initial design of ProTech.
  - **Provide resources to support reform.** ProTech asked teachers to revamp the content and methods of their classes without any support or on-going training from curriculum specialists. ProTech wanted teachers to develop projects to link student learning at school and work, but did not provide the means for teachers to gain first-hand knowledge of student activities at the hospital or to develop teaching partnerships with hospital staff.

ProTech has already addressed these initial oversights in its second year of operation. Beginning in the summer of 1992, ProTech arranged for teachers to attend training institutes and receive year-round support from curriculum specialists and ProTech staff. ProTech has also brought in a full-time project coordinator for each school. These coordinators are team teaching classes with academic faculty, helping structure and supervise student projects, and training students on job-readiness skills. Finally, ProTech is building teacher ownership of program by giving teachers a lead role in curriculum development process.

Recommendation: Give renewed attention to integrating students' school and hospital experiences. The goal of integrating school and work has proved far more difficult to achieve than anticipated by the designers of ProTech. The program is now creating structures to link school and work experiences: clustering ProTech students in special classes, providing on-going training and staff development for teachers assigned ProTech classes, adding project coordinators as supplemental teaching staff. But more must be done. Homework and class assignments must be integrated into clinical rotations and job activities; competencies gained through on-the-job activities must be recognized through academic credit. Learning partnership developed between teachers, workplace mentors, and students should become the central strategy for integrating learning at school and at work.

IV. Unifying High School and Post-Secondary Training

Youth apprenticeship is not an alternative to higher education, but a way to make higher education accessible to a broader range of students. In the health care industry, where a college education is a virtual requirement for career advancement, youth apprenticeship models generally include a minimum of two years of college. ProTech is designed to make post-secondary education accessible to Boston public school students who typically fail to enter or complete college.

Lesson learned:

- **Developing a post-secondary component is a distinct and challenging task.** Initially, Project ProTech relied heavily on its partnership with Bunker Hill Community College to meet its post-secondary needs. When that partnership dissolved because of conflicting expectations and administrative obstacles, ProTech was left with no institution to take the lead and much time lost.

With the first class of ProTech students scheduled to graduate high school this coming spring, the task of securing post-secondary education placements has moved to the fore. The program staff is in the midst of tackling the many tasks involved in meeting this challenge:

- Identifying post-secondary vendors for various occupations.
- Recruiting colleges to become full partners, with set aside of spaces for ProTech students a condition of partnership.
- Developing plans to address any shortage of training spaces in ProTech occupations.
- Securing tuition assistance to ensure a "seamless transition" from high school to college.

Recommendation: Develop post-secondary component of ProTech. Project ProTech needs to establish a working group of hospital and PIC program staff to help design the post-secondary component and recruit post-secondary partners. As in the high school component, the fullest possible integration of classroom study and on-the-job training will have to be built from the ground up, involving college faculty and worksite supervisors in an active teaching partnership.

V. Student selection and outcomes

The story of ProTech's students reveal serious challenges for the Boston public school system and for implementing ambitious apprenticeship programs. ProTech began the 1991–92 school year with 88 students from four high schools. Thirty-eight percent of these students did not complete their first year. This first ProTech class suffered from inadequate preparation and shifting selection criteria, as well as the growing pains of a brand new program.

Lessons learned:

- **Student performance suffers from first-year problems.** The first year of operation was not an easy one for any of the parties, especially the students. The program spent most of the first year searching for a workable design. Many students found it impossible to handle the exacting and often conflicting demands of this unsettling period of experimentation.

  To address student problems, ProTech made a number of important program changes at the end of the first year. These include simplification of program structure and demands, addition of project coordinators at each school, provision of tutors and other academic supports, better integration of school and work experiences, and more careful screening and selection of students. The partners expect these and other adjustments to lead to substantial improvements in student academic and program performance.

- **The quality of the job placement has a strong effect on student performance in the program.** Two factors predicted student success in the program. The first, as expected, was past academic performance. The only other significant predictor of student retention was the quality of the student's job placement. The difference in the quality of first-year job placements between terminated students and retained students is striking. Sixty-three percent of students terminated from the program were employed in service positions such as dietary aide or equipment transporter while only a third were employed in more challenging and engaging clerical, technical, or patient care jobs. In contrast, 81% of students retained in the program were employed in clerical, technical, or patient care positions. It appears that placement in a high-quality job was a strong motivator and confidence builder for students. Conversely, placement in less challenging jobs may have discouraged student motivation and interest in the program, contributing to attitude problems which led to termination.

- **Acceptance standards must balance program needs and target populations.** The hospital partners originally proposed that students selected for ProTech should have at least a C+ overall grade point average, 90 percent attendance, and a B in the core subjects of math, science, and English. This standard would have disqualified all but the top 12 percent of entering eleventh-grade students at participating high schools from the program. Unable to develop new criteria and still meet recruitment deadline, the partners granted the schools a great deal of latitude in student selection for the first year.

  In the second year, the partners formally modified the academic requirements for program admission to a C grade point average, 85 percent attendance, and a C– in the core subjects of math, science, and English. When this modest entry standard is applied to the group of eleventh-grade students from the four participating high schools, the number of students who qualify for ProTech is still alarmingly small.

  Until more is done to raise the general performance of Boston's high school students, programs like ProTech will remain beyond the reach of nearly half of Boston high schoolers. Youth apprenticeship programs like ProTech can be only one piece—albeit an important one—of a comprehensive plan to rejuvenate Boston's high schools and improve the career and life prospects of the city's youth.

- **ProTech students' academic difficulties caution against unrealistic expectations for youth apprenticeship programs.** The majority of students who entered ProTech with poor academic records were unable to make it through the first year. The program partners concluded that the demands of the ProTech model were too much for students with severe academic or behavioral problems to handle. School, hospital, and program staff all agreed that proposed improvements in program design would not be enough to make the program accessible to these students.

Recommendation: Take steps to improve student performance and retention. The ProTech partners understand the imperative to improve student retention and program performance. ProTech is taking many steps to redress first year problems with student performance. ProTech needs to continue to make program structure and demands more coherent to students. And it needs to further integrate worksite learning into the core curriculum as a strategy for boosting student achievement.

VI. Achieving a Cost-Effective Design

Is youth apprenticeship an affordable program design for school systems and employers? To move from the margins to the mainstream, programs like ProTech must demonstrate that the costs of delivering instruction at the workplace and of coordinating learning at school and work are not prohibitive.

The current operating budget for ProTech is $450,000, adding about $3,500 to existing per-pupil costs. The budget supports seven central program staff, program overhead, and curriculum development. It also includes tuition costs of senior year college courses, student orientation activities, and the production and distribution of program materials. It does not include employer contributions to the program.

Lessons learned:

- **ProTech adds to per-pupil costs for four reasons:**
  - The program's workplace activities are add-ons to the regular school schedule, and the seven central staff involved in the program supplement rather than substitute for regular school staff.
  - Coordinating a program between three schools and seven different hospitals and college partners is complex and costly.
  - The cost of rearranging school schedules to provide common planning periods for ProTech teachers and make worksite learning central to the curriculum will remain high as long as the number of participating students in each school remains small. Larger numbers are needed to realize economies of scale.
  - Because of the pioneering nature of the program, Project ProTech shoulders the burden of developing most of the curriculum it needs.

- **ProTech requires a substantial up-front investment by participating hospitals.** Hospital investments include: staff time of a hospital employee to coordinate the hospital-based portion of the program (i.e. clinical rotations, apprenticeship placements); student wages of part-time and summer jobs; staff time of hospital employees who serve as mentors and coaches for clinical rotations and on-the-job apprenticeship training; and staff time of upper management in program planning and governance.

- **Hospitals remain convinced that ProTech is a cost effective investment to meet their institution's future labor needs.** The hospitals see the program producing the kind of skilled and flexible workers they need to meet current and anticipated labor needs. The hospitals anticipate that student contributions to production will more than offset wage costs during the last two years of their apprenticeship. ProTech is also helping the hospitals diversify their technical workforce to better represent the cultural and ethnic backgrounds of the patients they serve. Finally, hospitals value ProTech as a way of fulfilling community service obligations while improving local labor supply.

- **Hospitals identify additional benefits in staff morale.** Most hospital representatives saw immediate positive effects on staff involved in training ProTech students. They hypothesize that hospital staff – who spend most of their day caring for very sick and elderly patients – get a real boost from mentoring healthy and hopeful young people. Other staff members, working in labs and in technical areas, gain energy and enthusiasm from students. For many staff the opportunity to teach was a welcome change from routine tasks. In addition, representatives felt that the experience was creating a more culturally aware and sensitive staff.

Recommendation: Develop strategic plan to finance and institutionalize program. To move from the margins to the mainstream, the model of career education represented by ProTech will need to show that it can improve educational and career outcomes for a significant portion of BPS high school students *at a cost that is not prohibitive*. With seven hospitals offering 120 placements, ProTech is well on the way to achieving sufficient scale. The main obstacle to ProTech's adoption is cost.

If ProTech is to make itself a financially viable model of career education, it must begin to rethink its design to address cost issues. To date, ProTech has redressed program weaknesses by adding resources, most notably three new central staff. Though expedient as a short-run solution, this approach threatens the long-run viability of the model. Short-term strategies for program improvement need to be guided by a clear vision of what ProTech has to become in order to gain permanence and influence in the system.

The ProTech partners need to develop consensus on a strategic plan to streamline program costs and institutionalize the program model. ProTech will need to consider a number of program design options in the interest of giving the program needed permanence and influence in the school system:

- Consolidating ProTech in a single school to simplify coordination of school and work components and delivery of support services
- Expanding ProTech into a four-year high school program offering health-career education to a broader slice of students
- Making ProTech one component of a multi-industry apprenticeship program to distribute central program costs
- Integrating ProTech into a comprehensive health occupations program, making use of existing vocational education resources
- Streamlining the existing model to reduce staffing requirements, either by reducing central staff or by substituting school staff for central staff.

New York Times
November 26, 1992 p.1

Teaching High School Students How to Work

Finding What Works — *Third of four articles:* Apprenticeships.

By JASON DePARLE
Special to The New York Times

BOSTON — In the morning, they are two high school girls with big hair, red nails, and bored looks in physics class. Sylvia Velez doodles. Susan Colarusso chews gum. They wonder what they have to gain by memorizing the difference between velocity and acceleration.

But in the afternoon they are cheerful exemplars of the job-training approach that economists, in unusual numbers, are endorsing as a tonic for the nation's ailing economy. As members of a youth apprenticeship program here, called Project ProTech, they spend part of their high school days cultivating a marketable skill, in their case as hospital technicians.

Traveling each day to one of the nation's premier teaching hospitals, they turn tissue samples into medical slides. They get paychecks. They complain about taxes. "We're women of the 90's," Ms. Velez said with unconcealed pride.

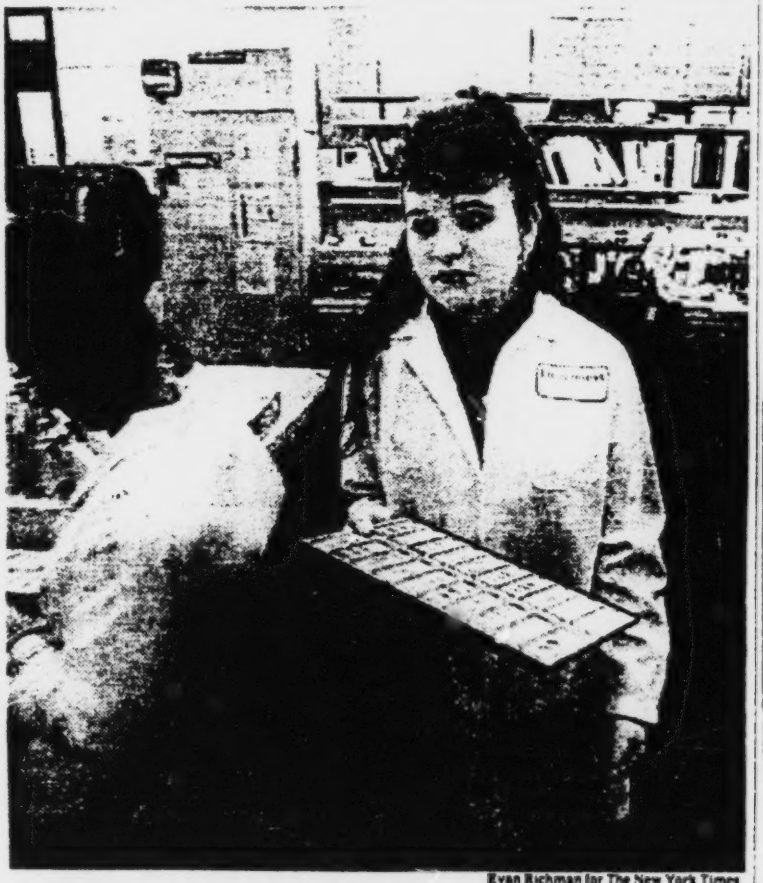
To Revive the Economy

That at least is the hope of many job-training experts. They argue that to revive the economy the nation must not only create more jobs but also train better workers, especially high school students who do not go on to graduate from four-year colleges. These student make up 75 percent of all those who start high school, and they have seen their earnings decline sharply in recent years.

Many, including the older siblings of Ms. Velez and Ms. Colarusso, leave school disaffected, enter the work force with no special training and bounce from one low-wage job to another, year after year, before settling into unpromising occupations. Many economists believe that this not only hurts the workers' personal finances but also leaves the nation at a disadvantage in its competition with other nations that have better trained workers. While unskilled young people are now seen as a brake on the economy, properly trained, they could help power its engine.

Attempts to blend high schools and job-training have a long American history, but the record is mostly undistinguished, leading to few good jobs. Only a few thousand students are now in youth apprenticeship programs being

Continued on Page D15, Column 1



Evan Richman for The New York Times

Sylvia Velez, a high school student taking part in an apprenticeship program at a hospital in Boston, with slides that she helped prepare.

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Continued From Page A1

tried in about 20 states. But what makes these programs different, their advocates say, is the intensity of the training and the goal of leading to a certifiable skill universally recognized by employers.

Students in Project ProTech are promised part-time hospital jobs during two years of high school and two years of junior college, after which they are supposed to be certified in a marketable medical skill. While Ms. Velez and Ms. Colarusso are working in histology, the study of tissues, other students work in radiology or hematology. In other parts of the country, apprenticeship programs are training students to work in machine shops or commercial printers.

President-elect Bill Clinton is so enthusiastic about the approach that he made it a frequent campaign theme and has pledged legislation that would provide about $2 billion a year to support the programs.

"It's a big deal for us," said Bruce Reed, the Clinton transition team's deputy director for domestic policy.

But it will be a formidable task to turn youth apprenticeships from a group of promising pilot projects to a common American experience. To do what the advocates want would require a fundamental reorganization of American education. It would demand a kind of cooperation among businesses, schools and Government that is common in some countries but unprecedented here.

"On the one hand, there really is a consensus that we have to do something drastic about what is the worst school-to-work-transition system in the industrial world," said Andrew Hahn, a professor of public policy at Brandeis University and an advocate of youth apprenticeships.

"But," he warns, "the technical problems of apprenticeship programs could be overwhelming: where are you going to put all these kids?"

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Obstacles

Cost and Effort Are Substantial

Project ProTech illustrates both the potential benefits and the likely perils of the youth apprenticeship approach. After morning classes of English, algebra and physics, Ms. Velez rides a bus downtown to Deaconess Hospital, which is affiliated with Harvard Medical School.

There she joins the hospital technicians who take pieces of patients' bones and tissue, process them in chemicals, imbed them in wax and then slice them into razor-thin ribbons. She takes the shavings, attaches them to slides, dips them in dye and carefully checks the numerical coding, to be sure the slides are matched to the patients.

Her pride in her white lab coat is unmistakable, and her supervisor, Freddy Perez, says that with a year's training she is now as competent as most members of the regular staff.

"I can guarantee you a hospital would hire her," he said. "I would hire her."

Ms. Colarusso does similar work on experimental tissues in a research laboratory.

Part of ProTech's promise is that it centers on an expanding industry, health care, where future employment opportunities are likely to be plentiful. Like hospitals, many printers and machine-tool businesses have also been concerned about the availability of trained employees, and some are sponsoring apprenticeship programs, too.

But all these programs are too new to have track records. And in Boston, program officials warn that it takes considerable amounts of time and money to coordinate the three-way relationship among the schools, hopsitals and the Private Industry Council, the business group that runs ProTech. Even with a $970,000 Federal grant, the program is able to serve only 120 of the city's 15,000 high school students.

Lois Harrison-Jones, the school superintendent, speaks of ProTech admiringly but balks when asked if she would commit money from her own shrinking budget to sustain it. "If that happened, it would be at the expense of something else," she said.

In addition, the students who participate have been selected in part because of their special [redacted] ProTech applicants have to write essays, [redacted] views by the hospital, school and industry council.

Last year 115 people applied for 70 spots. Youth apprenticeships are unlikely to help the most troubled students, since no one expects hospitals or businesses to take on the burden of training.

For Ms. Velez and Ms. Colarusso, both 18 years old, the program does seem to be having a clear, positive effect. But it is not necessarily the one intended. The students, their families and their supervisors say the program has raised their confidence and drive, but neither student is sure she wants to be a histology technician. Both are applying to four-year colleges, something they did not plan to do before entering the program, but remain uncertain about what will come next.

"I'm not sure what I'm going to do yet," Ms. Velez said.

"Yeah, there's so much," Ms. Colarusso said.

While no one denigrates the importance of general ambition, Mr. Hahn, the Brandeis professor, warns that this is not the goal of apprenticeships. "These are very expensive programs that are supposed to place people in particular jobs," he said.

Dead Ends

Bored in Schools, Lost in Job Market

As the economy has shifted away from semiskilled but well-paying manufacturing jobs in the last two decades, the prospects of unskilled workers have grown correspondingly weak.

For men younger than 25 with only a high school diploma, earnings adjusted for inflation fell 28 percent from 1973 to 1986, according to calculations by the Center for Labor Market Studies at Northeastern University. In dollar terms their annual earnings fell from $14,937 in 1973 to $10,720 in 1986, expressed in 1985 dollars.

For high school dropouts, the decline was even more precipitous, from $11,595 in 1973 to $6,725 in 1986, a drop of 42 percent. Later figures were not available, but for both groups the decline is believed to have continued.

Like the sisters of Ms. Velez and Ms. Colarusso, most students who are not bound for college spend years after high school drifting. Miriam Misla, Ms. Velez's sister, made beds at a Hyatt hotel and worked in a car[redacted] factory, [redacted] earning more than $7.50 [redacted] the local mall.

"She ran around with a bad crowd, that's why," Ms. Colarusso said. "That's what I was doing until I smartened up."

Employers often attach limited meaning to a high school degree, even when a student gets one; they may neglect to check grades, for instance, or to compare schools' reputations. And students often see little connection between what they study in class and their ability to prosper outside it.

Sitting in physics class recently, Ms. Velez and Ms. Colarusso were asked to calculate the acceleration of a person who falls from a hot-air balloon. At 76,400 feet. With no parachute. While wearing size 16 shoes.

Others in the class got up and roamed the room. One student shook his hips seductively while singing in falsetto into an imaginary microphone. The teacher explained that the clue about shoe size was a red herring, but this forced him to explain what a red herring was, and he was soon mired in a digression about the color of herring, which is silver.

Ms. Colarusso chewed gum and shrugged good-naturedly at her confusion. "Red herring = fish," she dutifully wrote in her notebook, uncertain where the information was getting her.

For students not going on to college, traditional vocational programs are intended to supply part of the solution. But the coordination between what schools teach and what employers want has been notoriously weak. Studies have estimated that as many as 70 percent of the students who graduate from these programs never work in their field of training.

Community college programs try to fill part of the gap. But most students start and stop those programs several times, and community colleges have also been accused of neglecting employers' concerns. The Federal Job Training Partnership Act tries to reach young unskilled workers, but its financing is modest and its program short-term, and a recent study showed it was actually lowering the earnings of young men.

Models

Which Programs Will Work in U.S.?

The advocates of apprenticeship programs point to Germany as a model of what close school and work connections can accomplish. There, approximately two-thirds of the coun[redacted] students participate in a formal apprenti[redacted]

a likely job when they are finished.

German students not planning to attend college usually choose their occupations as young as age 14. Businesses see the system as a pipeline for future employees and put up about 40 percent of the cost.

No one expects an American adaptation to be as rigid. The education system here has long considered early tracking to be a form of class oppression that consigns people to working-class lives at an early age. General education is seen as a requirement of democratic society, and American programs, like Project ProTech, would be unlikely to discourage students who decided they wanted to attend college.

Still, many schools do want to build closer links to business. The question is how?

Can school administrators and businesses overcome their mutual distrust? Where will programs find enough businesses to devote their time and money to training students? Will the businesses really hire their trainees? What happens in an economic downturn?

Businesses may have their own qualms. Given the notorious mobility of the American labor force, a Boston hospital may worry that it will spend four years training histology technicians who will then move to Florida.

And there is also the issue of standards. A true apprenticeship model assumes students can pass a single test — as a radiology technician, say — and then carry that credential with them anywhere in the country. But only a limited number of fields operate with such agreed-upon national credentials.

Attempts to expand them are likely to bring fractious debates over who writes the rules. And the stricter the guidelines, the greater the chance of driving capable but uncredentialed people from the field.

Despite these hurdles, some experts are optimistic. They argue the nation now has a consensus that it needs to improve its workers' skills and a President-elect who is pledging backing and a budget. "I think you can phase in a full-blown program in 5 to 10 years," said Ira Magaziner, a Providence business consultant and a longtime friend of Mr. Clinton who is on the transition team.

But Professor Hahn of Brandeis is less certain. "It's difficult to see how the movement could become institutionalized very quickly," he said.

Fringe Benefit

Students Gain Self-Confidence

Colarusso and Ms. Velez have the same date of birth, Sept. 12 — 18 years ago. Walking to their bus stop after work, they seem like a Boston version of "Laverne and Shirley," two working women so intertwined they can complete each other's sentences.

Would they fool around if they worked beside each other?

"I wouldn't," Ms. Velez said.

"No!" Ms. Colarusso interrupted.

"When I'm at work, it's *at* work," Ms. Velez said.

"Work in a professional manner," Ms. Colarusso said.

Before entering the program, they had only the haziest notions of what might await them in the world beyond high school. Ms. Velez's mother, who is from Puerto Rico and does not speak English, has mostly lived on public assistance. Ms. Colarusso's mother is a clerk with the Census Bureau, but her daughter knows little about what she does. "She has her own desk; that's all I know," she said.

When asked what they have learned, both students talk first about social rather than technical skills. Ms. Colarusso said that when she first started working, her nerves would flare in the presence of doctors. "Now I walk by and not get all tied up," she said.

Dean L. Manheimer, the hospital's vice president for human resources, said Deaconess's decision to join the program was born of both altruism and self-interest. "We've got a lot of jobs to fill, and we need highly technical people," he said, explaining that he sometimes recruits trained technicians from as far away as Ireland. Taking on 10 high school students who earn $6 an hour gives him the chance to train and screen potential future employees.

But he warns that letting high school students loose in hospital laboratories involves "an enormous commitment of time and resources." The students' salaries alone will cost the hospital $74,000 this year, and Mr. Manheimer estimates the program consumes another $20,000 worth of supervisors' salaries. He has paid for the program in part by shifting money to it from his recruitment budget.

Janet Saxton, Ms. Colarusso's supervisor, would not let her out of sight for months. When Ms. Saxton ran an errand, Ms. Colarusso was required to follow, so she would not be left in the laboratory alone.

Even now, her uncertainty is often evident. Pointing to a piece of tissue, she identifies it as "diaphragm — no, diagram, right?"

"Diaphragm — you were right the first time."

said. "I'm just getting to know them."

But Ms. Saxton said her protegé's skill in preparing slides allowed her to double her output over the summer. And Sheila Colarusso, her mother, is among those impressed by her daughter's rising grades and polished attitude.

"I'm shocked," she said. "This is the first time I've ever seen a school program work."

Ms. Velez, an honor roll student, is applying at four-year schools that range from Regis College in Weston, Mass., to the University of Massachusetts at Amherst. At the same time, she is trying to lift her combined score of 730 on the Scholastic Aptitude Test.

When Mr. Perez, her supervisor, starts talking about her work, he gets so enthusiastic he often has a hard time stopping. He talks of the time a pathologist stopped by to compliment him on the slides the lab prepared for a conference. "I said, 'Thank Sylvia,'" he said, since she had made them.

But Mr. Perez's favorite story is about the day Ms. Velez had to leave the lab early and admonished him to put the bone samples into a chemical vat, a last piece of business she ordinarily performs.

"She said, 'Don't forget the bone!' " Mr. Perez said. "I said, 'This kid's telling me what to do!' "

Sure enough, Mr. Perez forgot the bone.

And 45 minutes later an alarm clock went off inside his desk drawer. "I go to my desk," he said, "and I see this big paper: 'Freddy, don't forget the bone.' "

He beams as he tells the story, but Ms. Velez rolls her eyes.

"That's the only way he remembers — a bell and a big note," she said. She spoke with the exasperation of a teen-ager who must suffer adults. She spoke with the confidence of someone about to become one.

NEXT: Building new skills for the workers who have been left behind.

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Latest Hope for the U.S. Labor Force:

Evan Richman for The New York Times

Many job-training experts contend that better trained workers are needed. Taking part in a project in Boston, Susan Colarusso, left, and Sylvia Velez, center, spend part of their day in high school classes and then work in an apprenticeship as hospital technicians.

High-School Apprentices

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A Burrelle's Affiliate

TRANSCRIPT

DATE January 21, 1993
TIME 6:00-6:30 PM (ET)
STATION National Public Radio
PROGRAM Marketplace

Cameron Sanders, anchor:

Bill Clinton ran his campaign on the refrain of "jobs, jobs, jobs." But among his biggest domestic challenge besides helping the economy create jobs, is trying to prepare the workforce for those opportunities. College graduates are generally well prepared for employment in so-called high wage, high skill jobs. But about 1.4 million high school graduates spill into the economy with little or no skills. What options do they have? Well, Boston correspondent Madge Kaplan reports that the Clinton administration is looking at several training programs around the country and one in that New England city just might prove to be a national model.

Madge Kaplan reporting:

It's a typical morning at Boston High School. The hallways are flooded with students hurrying to get to the next class. When school lets out in an hour, most of these kids from some of the city's poorest neighborhoods will head off to afternoon jobs babysitting, working in local supermarkets or fast food joints. Senior Delmi Figerero [sp], however has a job where she's learning different skills.

Here on the neurology floor at Mass General Hospital, Demi helps an RN with equipment that automatically massages a patient's injured leg. She asks lots of questions, which is typical I'm told, of the one hundred and twenty students enrolled in Project Protec. It's a new program that's preparing Boston teens for jobs in the health care industry. A carefully selected group of juniors and seniors divide their time between school and seven nearby teaching hospitals where for $5.50 to six dollars an hour they're training to be medical technicians. Delmi's classmate, Dawn Moore, also at Mass General is learning on to administer EEGs.

Dawn Moore (Student): I help measure the heads to replace the electroids on. I enter their data into the computer and when the test is finished I take off the electroids off their heads and wash their head and make sure that I clean the electroids properly so that they aren't contaminated in any way for the next patient to be used.

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Kaplan: After Delmi and Dawn graduate from high school, they and other Protec students will apprentice full time at the hospitals while attending two years of junior college. They'll then be eligible, says Protec's director Lois Ann Porter, for jobs with starting salaries of twenty-four thousand to thirty-six thousand dollars a year. Porter says when it comes to youth apprenticeship health care is ideal.

Lois Ann Porter (Director, Project Protec): Because health care does require credentials, post-secondary training but not necessarily for a year, when a student comes out of the program, they're entering into a true career ladder within the health care industry in the city of Boston that is growing.

Kaplan: Project Protec is now one of about a dozen federally funded youth apprenticeship programs around the country, geared toward the seventy-five percent of American high schoolers who don't attend or finish college. In states such as California and Michigan, the focus is on electronics and machining. And all these programs are being watched closely by the Clinton administration concerned about what some are labelling the forgotten half.

Bruce Reed (Domestic Policy Assistant Transition Director): Young Americans with only a high school education have seen their incomes drop by twenty percent in the last fifteen years. We simply can't allow that to go on.

Kaplan: That's domestic policy assistant transition director Bruce Reed. He says President Clinton may ask Congress for two hundred million dollars next year or twenty times what's being spent now on new job training programs for youth, leading eventually to a national apprenticeship system.

Reed: In which any young American who goes to high school will know that if they work hard and stay in school that by the time they're through, they'll be qualified for high skills, high wage jobs.

Kaplan: But creating a national system won't be simple. Like successful youth apprenticeship programs in Germany, Denmark and Switzerland, U.S. companies would have to work with government to develop industry wide standards to ensure a teenager's training is nationally recognized. Anything that smacks of vocational education in this country will have to overcome a long history of second class status. Plus observers say in order to attract students to youth apprenticeship there have to be jobs waiting at the other end. Many businesses won't make that commitment which raise the question do enough jobs even exist. Northeastern University labor economist Andrew Summ.

Andrew Summ (Labor Economist, Northeastern University): Looking at our job creation in the country over the last year, net job creation has still been very, very small.

And until we get back to adding a million to two million jobs a year, it will be difficult to absorb a rapidly expanded apprenticeship systems so you have to be careful, otherwise you're making promises to young people that you won't be able to keep.

Kaplan: Nobody expects a youth apprenticeship system can or will be created overnight. On-the-job-training requires a lot of supervision and it may take a decade to obtain the needed support from the private sector. In the meantime, Project Protec is so pleased with its foray into health care, similar apprenticeships are now being developed for the banking and financial industries. Bio-tech may be next.

From the Boston bureau at WGBH, this is Madge Kaplan for "Marketplace."

# # #

FINANCIAL TIMES TUESDAY SEPTEMBER 29 1992

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The classroom moves closer to the workplace

John Gapper examines experiments designed to improve US vocational education and equip school leavers for employment

Beth Moore, an 11th grade school pupil in Boston, has learned a lot from working in a hospital. "It's good for growing up. Everything you do there has to be right, because you can jeopardise someone's life if it's not," she says. Unlike her friends, she has discovered what she wants to do after school. "I think when they say they don't want to work, they mean they don't know how to go about it," she says.

Beth is fortunate for a US pupil who is not going to attend university. Unlike many who drift through school without any clear goal, her education is being directed to an end. She is preparing for two years of part-time study at a community college. If she succeeds, she will qualify as a medical technician and could earn about $25,000 a year.

Beth Moore is taking part in an experiment funded by the federal government in Boston called Project ProTech. The aim is to fill some of the technical posts in local hospitals by providing an alternative to academic education for pupils who might otherwise drop out of school before 18. Many of the 90 in the experiment's first year come from public schools with high drop-out rates.

These links between schools and employers are common in countries such as Germany with a strong tradition of youth apprenticeship. But they mark a profound change for the US, where most parents want their children to have a university education. Only now is the scarcity of well-paid jobs for those who do not enter post-secondary education forcing schools to rethink their purpose and methods.

The result is a sharp increase in local experiments which try to provide a coherent strategy for the 84 per cent of pupils who do not go to university. The common aim of efforts such as Project ProTech is to help young people gain enough education to perform the expanding number of technical and professional jobs.

The need for such innovation is plain when one sees how vocational education has been handled until now. The US has never had a European-style dual education system in which academic and vocational schools are split. Instead, the 15,700 comprehensive high schools – compared with only 220 specialist vocational schools – offer job-related courses as an optional extra to core academic disciplines.

Such vocational courses are commonly second-rate. Many vocational teachers are recruited from industry, with less training than academic

teachers. Their classes tend to offer narrow job skills rather than competencies applicable in all forms of work. Thirty vocational programmes in Philadelphia schools were stopped in 1988 after a business-led inquiry found they were achieving little or nothing.

As a result, pupils not heading for college have resisted entering vocational classes. They have preferred a less stringent form of academic education, within schools, called "general track". General track classes are widely blamed for lowering standards by allowing pupils within a single school to choose between a dozen forms of maths or English courses of varying rigour and content.

"The alternative to the college track has been general education which does not prepare students for anything," says Ms J D Hoye, Oregon's associate school superintendent.

Ms Betsy Brand, assistant secretary at the US Department of Education, says schools have treated average pupils as an afterthought. "Our attitude has been elitist, and we have got to start looking at different strategies," she says.

Current reforms fall into two groups: improvements to secondary vocational education, and efforts to create a better path from school into work and further education.

Most reforms of secondary vocational education attempt to broaden the traditional view of preparation for work. Instead of encouraging pupils to learn craft skills such as carpentry or hairdressing, they tailor academic work to occupations. The aim is twofold: to motivate pupils to remain in school by making lessons more relevant; and to give them a better range of skills.

'The alternative to the college track has been general education which does not prepare students for anything'

Some initiatives involve "schools within schools", which split the large public schools into small units where a group of teachers co-ordinates lessons around a subject. The best known examples are the "high school academies" in Philadelphia which offer lessons based on sectors such as health and horticulture. In the latter, pupils run a flower shop as well as being taught landscaping and aboriculture.

The academies achieved graduation rates of between 88 and 100 per cent last year, compared with about 60 per cent in other high schools. They were founded in 1969, but have been expanding and are expected to cover 17 per cent of the city's public school pupils by 1995. Ms Natalie Allen, the academies' director, argues that they are "the closest we are going to get" to apprenticeships.

Other states such as Oregon and Indiana are attempting a more ambitious approach. Indiana is creating a system under which 15 and 16-year-old pupils will take an exam covering literacy, technology and mathematics. They will then choose an area of study for their final two years of school from curricula such as business, health or technology. In all cases, they will study maths, science and language.

These sort of courses – often known as Tech Prep – have been encouraged by amendments to the Carl Perkins Act, which provides federal funds for vocational education. Ms Brand says such courses "hold out a vision of post-secondary education for many students who would not dream of it", by guiding them towards skilled occupations in which they are likely to receive further training at community college.

The second set of reforms goes further than simply changing secondary education. It tries to link study at school and community colleges with jobs. The ProTech effort gives pupils a day's work experience at a hospital each week while they are at school. When they leave, they study part-time at community colleges for two-year degrees while working as trainees at the hospitals.

But there are two difficulties with such efforts. One is that they require the kind of links between employers and schools common in Germany, but unusual in the US. The second is that parents are reluctant for their children to be selected for skilled employment rather than university at 16.

Thus the best hope for the reform movement is probably that enough pupils such as Beth Moore gain well-paid technical jobs. Until they start to see the value of an alternative to university education, many US parents will remain loyal to a form of schooling that was built to serve the interests of all but is increasingly failing the majority.

The author is a Harkness fellow of the Commonwealth Fund, New York. This is the third in a series about US education and training. Previous articles appeared on August 17 and 24.

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THE CHRISTIAN SCIENCE MONITOR

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PREPARING FOR A CAREER

Apprenticeship Programs Spread

High schoolers get training and sought-after skills while keeping up with regular studies

By Mark Trumbull
Staff writer of The Christian Science Monitor

BOSTON

EVERY day, Benjamin Pascual dons a white lab coat like other workers in the Boston City Hospital radiology department. He develops film from scanning machines and observes as specialists use the images to examine patients.

What's unusual is that Mr. Pascual is a junior in high school. He is one of 87 students in Project ProTech, an apprenticeship program started last fall to help Boston youths prepare for careers in health care. The four-year program starts in 11th grade and leads to a high school degree, a two-year degree from a technical school or community college, and a skills certificate from the hospital.

Youth apprenticeship programs like this one are beginning to sprout across the country, prompted by concerns that the United States is failing to prepare its young people to enter the work force in an era of increasing global competition.

"For noncollege-bound students in the United States, [today's] education is irrelevant to them and their employers," says Gov. John McKernan (R) of Maine, who is developing a statewide apprenticeship program.

But apprenticeship faces an uphill battle in the US. In Germany 70 percent of students, including many who later get a college degree, go through apprenticeship programs, notes Hilary Pennington, president of Jobs For the Future, a nonprofit research organization in Cambridge, Mass.

US vocational education is viewed by many students and educators as second-class. Attention is focused on America's world-recognized universities. Yet almost half of the nation's young people never get there.

"There has been no coherent effort to reach out to employers or interest them" in apprenticeship, Ms. Pennington says. She says the US has only about 1,000 people in youth apprenticeships – programs in which learning at school and work leads to formal credentials for a career. (More than 200,000 workers in construction and other trades learn their jobs as apprentices, but these workers are no longer in school.)

Wisconsin, Arkansas, California, Iowa, Michigan, and Oregon are developing youth apprenticeship programs. Democratic presidential candidate Bill Clinton is a strong proponent of the idea, and President Bush proposed in April a $55-million National Youth Apprenticeship Act to promote such programs. In outlining the legislation, Labor Secretary Lynn Martin noted that three-quarters of Americans do not get a four-year degree, "yet they are the backbone of our future work force."

'For noncollege-bound students in the United States, [today's] education is irrelevant to them and their employers.'

– Maine Gov. John McKernan

The stakes are not only economic, but social, Governor McKernan said in a recent interview. "This country is going to break apart if we have half the people with no economic opportunity."

Although the US programs to date are humble by comparison to Germany's, Pennington says she is hopeful that the US can develop a broad system of youth apprenticeship as companies recognize the advantages of doing so. Businesses are already involved in cooperative education programs that in 1990 served 430,000 students, 8 percent of the nation's juniors and seniors in high school. These programs give academic credit for part-time jobs.

However, advocates of apprenticeship say the need is not for teenagers simply to have jobs but for them to be prepared for a career. The apprentice should gain formal credentials that are recognized industrywide.

"Tinkering around the edges ... doesn't quite meet the needs," says McKernan, who currently chairs the Education Commission of the States.

In Germany, industry groups known as chambers decide what apprentices should learn. Virtually all businesses participate, and labor unions and educators are represented on the chamber committees that set standards. If youth apprenticeship is to succeed here, US industry associations may need to take on a similar credential-setting role, some experts say.

A more basic problem is getting businesses onto the apprenticeship bandwagon in the first place. Businesses are increasingly keen to get an educational system that better meets their needs, and this would give them direct involvement. But McKernan is having to build support one company at a time.

Maine's program is starting with seven employers in insurance, medical-records management, and machine tools. The governor recently hosted a dinner for business people to line up more participants. If programs like Maine's fail, "it will be because the business community failed to live up to its needed involvement," he says.

Pennington says demand for apprentices appears to be strong in the metalworking industry, which has a high proportion of workers near retirement. In Wisconsin and Tulsa, Okla., metalworking shops will be taking apprentices next fall.

In Boston, the ProTech students choose from eight health-care occupations. The four-year program includes full-time work each summer and part-time work every afternoon during school years. Six hospitals are participating. The four apprentices at Boston City Hospital – Pascual, Vivian Bonilla, Natasha Vasquez, and Laitasha McNary – travel by bus or subway to work after school. On Fridays, their science class is at the hospital, visiting various departments.

Pascual says he plans to use his experience to go into either radiology or to become an emergency medical technician. Ms. Bonilla says she may train to be a nurse.

The apprentices are also learning about the human interaction the work involves. As he checks people in for scans, Pascual says some patients are friendly and others irritable. "You get all types of people," he says.

Advocates of apprenticeship say that even if participants switch occupations, they will have learned important skills. Asked if he

GOV. MCKERNAN: *Pushing job training.*

One State Tries To Build Skills

SCARBOROUGH, MAINE

A SIGN of the times: One-third of the people entering Maine's technical colleges last year already had a four-year degree.

Gov. John McKernan points to this fact as a symbol of the increasingly demanding job market. Apprenticeships, he says, can help young people develop job skills early on.

Maine's apprenticeship program, which Mr. McKernan developed after a first-hand look at youth apprenticeship in Germany and Denmark, emphasizes work experience. Students take the following steps through the apprenticeship program:

9th grade: General career exploration begins along with regular academic program.

10th grade: Midyear, students are tested for readiness for apprenticeship program, after which they can apply for apprenticeships.

11th and 12th grades: Apprenticeship begins; 20 weeks at a regional vocational high school or secondary school, and 30 weeks working for an employer. High school degree earned.

13th year: Sixteen weeks of training at a technical college and 34 weeks working. One-year degree earned. Apprentices also receive a "certificate of mastery," guaranteed by the employer and school, which lists the skills the person possesses.

Businesses will pay students a modest salary – roughly $5,000 a year – that will be paid out weekly whether the student is in school or at work. In the final year, part of that money would go to the community college.

Does this amount to too much business control of education? Roland Osterlund, director of Denmark's Ministry of Education and Research, says no. Mr. Osterlund, who was attending a recent conference here, says that businesses should "have their needs reflected in the activities" of schools.

Also available:

TOWARD A YOUTH APPRENTICESHIP SYSTEM: A PROGRESS REPORT FROM THE YOUTH APPRENTICESHIP DEMONSTRATION PROJECT IN BROOME COUNTY, NEW YORK

by Mary Agnes Hamilton and Stephen F. Hamilton

January, 1993

This report describes the Cornell Youth Apprenticeship Demonstration Project, located in and around the city of Binghamton, New York. The report identifies issues encountered during the program's first year of operation and describes how they have been dealt with. It is not a manual, but practitioners and policymakers will find in it ideas about how to design and operate programs.

The Broome County program has particularly emphasized research on learning at work, because less is known about that topic than about learning at school. Tools such as the Apprentice Progress Report and concepts such as how students' learning takes place and how it can be assessed are discussed in this valuable contribution to the field.

For a copy of this report please contact:
The Cornell Youth and Work Program, (607) 255-8394

THIS CHAPTER CONTAINS:

Voices from the Field

A Framework for State Youth Apprenticeship Policy

Issues and Practice in the Development of State Systems
—With Examples From Maine and Wisconsin

Matrix: Youth Apprenticeship Legislation in States

"One of the fallacies in the system is that work skills aren't necessary for those going on to college...We're arguing that work skills are necessary for everyone."

—J.D. Hoye, Oregon Department of Education. From USA Today, 1/27/93, p. 5D

"I feel I am more prepared and more knowledgeable than any of my friends preparing for college. I work in a real hospital, with real patients and real employees. I have hands on experience in drawing blood, working with a physical therapist and working on computers."

—Erica Anderson, youth apprentice. From The Apprentice's Almanac, 1/93, p. 5

"The idea that business has a say in academia is a big plus. Counselors and teachers don't have a good understanding of manufacturing. We now have a way of affecting change. We're actually helping to write the job-related curriculum—what [academic preparation] the jobs need."

—Tom Panzarella, President, Cook Specialty Co., PA. From USA Today, 1/27/93, p. 5D

"I don't see that [youth apprenticeship] would be a problem if you let kids have an out. I mean, if you have a year of experience in a pre-engineering program and you want to switch to a medical field, that's okay. You are still ahead of the game! Right now, we are giving kids nothing!"

—Parent, from JFF's *Voices from School and Home: Wisconsin Parents and Students Focus on Youth Apprenticeship*, 1/92, p. 17

"Sometimes you get rules on the national level that can't apply to the local level. What happens in one area does not always happen in another area...So it is important to have local involvement and flexibility."

—Building trades union representative.
From JFF's *Union Perspectives on New Work-based Youth Apprenticeship Initiatives*, 1/92, p. 31

A Framework for State Youth Apprenticeship Policy: A Consensus Statement of Common System Design Principles

On April 14, 1992, Jobs for the Future convened a meeting attended by policymakers and practitioners from twelve states:

- Arkansas
- California
- Illinois
- Indiana
- Iowa
- Maine
- Minnesota
- Oregon
- Pennsylvania
- Texas
- Vermont
- Wisconsin

The states created a statement of common system design principles that include:

- The creation of a strong infrastructure that represents local and state actors, including employers, organized labor, government, secondary schools, and two-year and four-year colleges and universities;
- A system that is industry-driven—where employers and their representatives help set occupational skill standards, collaborate on curriculum, provide paid work experience and workplace instructors for apprentices, and certify mastery of skills leading to the award of a portable credential;
- Articulation of programs between high schools and post-secondary, credit-granting institutions;
- Focus on learning about "all aspects" of a broad industry cluster rather than mastering a narrow set of occupational skills;
- Program length must be a minimum of two years, at least one high school year and one post-secondary year, and the program must constitute the core of the student's education during those years;
- Structured integration between the workplace and the classroom and between academic learning and vocational/technical training;
- Priority on the provision of and training for high quality jobs of employers committed to the concept of "high performance work organizations";
- Adequate, effective support system for participants; and
- A model that is replicable, can reach significant scale, and is central to education reform strategies.

YOUTH APPRENTICESHIP:

Issues and Practice in the Development of State Systems —With Examples From Maine and Wisconsin

By Richard Kazis and John Niles

JOBS FOR THE FUTURE

February 1993

Youth Apprenticeship: Issues and Practice in the Development of State Systems

This paper was originally prepared for the National Governors' Association's National Conference on Investing in Youth, a conference held on December 10–11, 1992, in New Orleans, Louisiana. It includes the following sections:

Introduction

JFF's State Consortium: Common Elements for Youth Apprenticeship Systems

A Closer Look at Maine and Wisconsin

- Program Duration
- Structure of the High School Component
- Postsecondary Options
- Career Guidance
- Workplace Learning Structure
- Integrating School and Worksite Experience
- Certification of Skills
- Wages
- State Governance Structure

Implementation Issues for Statewide Youth Apprenticeship Systems

Conclusion

Introduction. Over a dozen states—from Maine to California, and from Minnesota to Texas—are exploring youth apprenticeship as a strategy for creating new, structured career pathways for young people in this country. Recognizing the critical importance of helping prepare *all* young people for productive employment and citizenship, many states are looking to a range of initiatives that more closely integrate school and work-based learning. Youth apprenticeship is one strategy receiving increasingly serious and widespread attention.

At the federal level, both major presidential candidates made youth apprenticeship part of their campaign platforms and speculation is high that this session of Congress will see passage of some form of federal support for youth apprenticeship. At the state level, more and more states that are eager to rationalize and coordinate their economic development, education and workforce development strategies are exploring the role that youth apprenticeship might play in such a restructured system. Moreover, as the likelihood of federal funding for youth apprenticeship increases, states that have not previously focused on the school-to-work transition and on youth apprenticeship are beginning to do so.

In this climate, it is important and timely to take a close look at progress to date in states on the design and implementation of youth apprenticeship systems. A growing—and varied—body of state experience can inform the evolution of federal and state efforts. In this paper, we examine state activity designed to build statewide school-to-work transition and youth apprenticeship systems. By identifying key issues, challenges, and strategies at the state level, we hope to advance the level of policy discussions on youth apprenticeship as a school-to-work option in the United States.

Because of the newness of youth apprenticeship as a concept in this country, we begin with some definitions. While no single model has yet won general acceptance, there is increasing consensus on the principles that should guide any youth apprenticeship program or system and on the basic design elements that differentiate youth apprenticeship from other models for linking school and work. These are:

- **Active participation of employers:** Employers provide jobs, training and mentoring to participants; they also participate in the development of curricula and establishment of skill standards.
- **Integration of academic and vocational learning:** As with the best of vocational education reform, youth apprenticeship programs break down the barriers between academic and vocational learning and infuse each with aspects of the other.
- **Integration of work-based and school-based learning:** Classroom instruction and workplace experiences are closely coordinated so that learning at one location reinforces the other.
- **Structured linkage between secondary and post-secondary institutions:** Youth apprenticeship models generally begin in eleventh or twelfth grade and provide for a smooth, continuous transition into one or two years of post-secondary learning.
- **Award of a broadly-recognized qualification of occupational skill:** In addition to high school diploma and post-secondary credits and credentials, successful youth apprentices should receive certification of mastery of occupational skills that is accepted by the industry in which they train and recognized by firms across the industry.

By simultaneously stressing three key integrations—of academic and vocational learning; of school- and work-based learning; and of secondary and post-secondary learning—and by emphasizing the central role of employers and of recognized occupational skill credentials, youth apprenticeship points the way to a very different conception of occupational preparation for young people.

JFF's State Consortium: Common Elements for Youth Apprenticeship Systems. Jobs for the Future (JFF) created the National Youth Apprenticeship Initiative (NYAI) in 1990 as a vehicle for advancing the knowledge base for and development of youth apprenticeship in the United States. From the outset, we determined that we needed to conduct coordinated research and development activities at the site, state, and national levels—i.e., at the key program and policy levels where youth apprenticeship is being created and tested. We wanted to make sure that state and federal policies would be both grounded in and inspired by the experimentation and learning of innovative local programs; and we wanted to make sure that local program designers would be motivated and helped by state and federal initiatives to promote diffusion, system integration, and scale.

For this reason, JFF identified and selected ten exemplary partnerships in eight states around the country that are building local youth apprenticeship programs. In addition, we developed working relationships with a group of states that are making concerted efforts to create statewide systems of youth apprenticeship. The interplay between our efforts with sites and states has enriched our ability to contribute to the progress of both.

In April 1992, JFF convened a meeting of representatives from twelve states working on statewide school-to-work transition initiatives. This group now forms the core of a consortium of state-level practitioners and policymakers who have committed to learn and work together on these issues. Member states include Arkansas, California, Illinois, Indiana, Iowa, Maine, Minnesota, Oregon, Pennsylvania, Texas, Vermont, and Wisconsin. Three other states, Georgia, Michigan, and West Virginia, have recently been invited to participate.

The consortium incorporates three smaller subgroups: 1) six states—California, Iowa, Maine, Michigan, Oregon and Wisconsin—that have received grants from the U.S. Department of Labor to promote their efforts to build statewide youth apprenticeship systems; 2) five states—California, Maine, Minnesota, Oregon, and West Virginia—that have competed successfully for implementation grants from the Council of Chief State School Officers; and 3) several states—including Arkansas, California, Georgia, Pennsylvania, Texas, Vermont and Wisconsin—where JFF has developed independent working relationships.

Five of these states (Arkansas, Georgia, Maine, Oregon, and Wisconsin) have enacted legislation that creates statewide youth apprenticeship systems. (Appendix I summarizes the key elements and provisions of these laws.) Other states, including Pennsylvania and Texas, are currently considering legislative initiatives or are building a statewide structure through administrative action.

At the consortium's initial meeting, participating states generated a statement of common design elements to guide individual state policy initiatives. The group agreed that a state system should provide for:

- A strong governance infrastructure that represents local and state actors, including employers, organized labor, government, schools, and two-year and four-year colleges and universities;
- A system that is industry-driven—where employers and their representatives help set occupational standards, collaborate on curriculum, provide paid work experience and workplace instructors for apprentices, and certify mastery of skills leading to the award of a portable credential;
- Program duration of a minimum of two years, at least one year of high school and one post-secondary year, with the program constituting the core of the student's education during those years;
- A focus on learning about "all aspects" of a broad industry cluster rather than mastery of a narrow set of occupational skills;
- Structured integration between the workplace and the classroom and between academic learning and vocational-technical learning;

- Articulation of programs between high schools and post-secondary, credit granting institutions;
- Priority on the provision of and training for high quality jobs by employers committed to the concept of "high performance work organization;"
- Adequate, effective support services for participants; and
- A model that is replicable, can reach significant scale, and is central to education reform strategies.

States in JFF's youth apprenticeship consortium have reached broad consensus on basic design elements. These states are trying to link school with work, link high schools with postsecondary options, and build programs in occupational areas with high skill content and prospects for career advancement. They do not want to create another marginal add-on program; to a great extent, they see youth apprenticeship as a vehicle for moving toward a more coherent statewide system for workforce development that involves education, labor, and commerce departments and incorporates programs for new entrants to the workforce, incumbent workers, and dislocated workers.

Of course, the principles hammered out by the consortium of states provide only limited guidance for the design and implementation of state youth apprenticeship systems. In the short run, there is bound to be significant design variation from state to state. This is already apparent in the strategies and policies that have been put in place among the first states that have committed to building youth apprenticeship systems, as the legislative matrix following this discussion indicates.

Because of the diversity among states in the structure of state government, the industrial base, and the institutions that provide K-12 and higher education, variation is to be expected. Consider these two seemingly simple questions: (a) where will the classroom component of youth apprenticeship be located? and (b) what should be the role of postsecondary institutions? Each opens a Pandora's box of options and possibilities.

In California, experimentation with youth apprenticeship has centered largely in the Academies, an innovative school-within-a-school structure designed for at-risk youth. In Pennsylvania, regional vocational schools are providing the classroom instruction. In Wisconsin, where there are no separate regional vocational centers, comprehensive high schools are the likely home.

The diversity of postsecondary institutional structures will also affect how a state structures youth apprenticeship. States like California with a strong two-year community college system have different capacities than states such as Georgia with technical institutes—differences that can affect the ease of articulation with high schools, the degree of experience among postsecondary institutions with technical training and working with employers, and the transferability of credits to four-year degree-granting colleges and universities.

A Closer Look at Maine and Wisconsin. Design differences can be demonstrated by comparing more closely the distinct approaches taken in Maine and Wisconsin. At present, these two states have the most clearly specified proposals to build new systems of youth apprenticeship. While neither state has seen its design tested with significant numbers of programs and students statewide, each has created an approach driven by a clear vision and each plans for comprehensive, statewide implementation within a few years.

Wisconsin has placed significant emphasis on and has embarked on an ambitious planning process to generate industry-led occupational skills standards in the metalworking and printing industries. Wisconsin has also made revision of career guidance in the state a central part of its system design. In Maine, these elements have received less attention. But Maine has created a system that engages the post-secondary institutions—through the technical college system—in ways that Wisconsin does not. Maine's program design requires articulation between the secondary and post-secondary schools and defines the program explicitly as a three-year program bridging the two.

The following pages compare and contrast the design of Maine's and Wisconsin's state youth apprenticeship systems along several defining dimensions of youth apprenticeship, including:

- Program duration;
- The structure of the high school and post-secondary components;
- The structure of workplace learning;
- Provision of career guidance services ;
- The nature of the integration between school- and work-based learning and between academic and vocational learning;
- Wage rates and progressions;
- Credentials granted and strategy for certifying skills; and
- Governance structure at the state level;

Program Duration. A majority of European apprenticeships last three to three and a half years. Jobs for the Future and the members of our state consortium support a program model that lasts at least two years, with at least one year in high school and one year in postsecondary learning. Some variation in program duration is to be expected, given wide variation in the skill demands of targeted occupations.

Maine: The state specifies a three-year apprenticeship period that begins in the 11th grade and continues through "13th grade" (articulating the high schools with the Maine Technical College system).

Wisconsin: Wisconsin defines youth apprenticeship as a high school program that feeds into a variety of postsecondary options, including the possibility of advanced placement in a traditional apprenticeship program or dual credit awarded by the local technical college.

Structure of the High School Component. While there is universal agreement that youth apprenticeship is a learning and earning option that begins during the high school years, both local programs and state policymakers working to develop youth apprenticeship systems differ greatly on how the high school component should be designed and structured.

One design issue is the extent to which youth apprenticeship is seen as a program for the vocational student or an option for all students. Both Maine and Wisconsin have designed a system open to any student who meets certain entry level academic requirements. A second issue is the extent to which youth apprenticeship requires significant changes in the school schedule. Will there be extensive block scheduling? Will students work half days and attend school half days? How much time will be spent at work and how much in school classes in each year of the program? How will the classroom component be structured to maximize work-based learning and the integration of academic and vocational learning? Maine and Wisconsin have different visions on this design question.

Maine: The state's proposed system design provides for 11th grade students to spend 20 weeks at a vocational high school and 30 weeks working for an employer, and 12th grade students to spend 14 weeks at a vocational high school and 36 weeks working for an employer each year. Variations may occur, depending on the nature of the industry or occupation.

Entry into Maine's youth apprenticeship program is open to all students who meet entry level academic requirements regardless of their high school program or "track," including college preparatory, vocational education, and general education programs. As in Wisconsin, Maine will

administer a tenth grade assessment of student mastery of core academic, motivation, and social maturity skills, based on the principles and knowledge areas articulated in Maine's innovative and comprehensive Common Core of Learning.

Wisconsin: The state has established a general design criterion that would include part-time work for 11th and 12th graders during the school year (limited to 15-20 hours of work per week) supplemented by summer employment that expands and reinforces the student's prior work-based learning. Variations in the mix of school and work may occur, depending on the nature of the industry or occupation.

Entry into Wisconsin's youth apprenticeship program will be an option open to all eligible students. Students will first have to demonstrate satisfactory performance on the 10th Grade Gateway Assessment—Wisconsin's version of the Certificate of Initial Mastery, still in development, which will certify foundation knowledge in mathematics, language arts, science, and problem solving. Having performed successfully on the Gateway Assessment, students will then choose one of three options for the remainder of their high school education: youth apprenticeship, college preparatory program, or tech prep program.

Postsecondary Options. Most models of youth apprenticeship propose a system that links high school and post-secondary institutions in a single integrated program. There is significant variation, though, on how formal and how extensive that linkage should be—and with which post-secondary institutions youth apprenticeship in the state should be aligned.

Maine: Classroom education in the third apprenticeship year takes place at the Maine Technical College. Graduates from the apprenticeship may continue at the Technical College or University of Maine system and seek an associate's degree or bachelor's degree.

Wisconsin: Technical colleges are encouraged to develop articulation agreements that offer dual credit for youth apprentice experience. Some apprenticeships may include a mandatory postsecondary segment. Graduates of youth apprenticeships may, depending upon the program, enter traditional apprenticeship with advanced standing.

Career Guidance. State officials recognize the need for career guidance reform as a part of any effective youth apprenticeship initiative. To make an intelligent choice about career options and educational programs that can provide entree into different industries and occupations, students need much stronger career guidance than they currently get. Ideally, schools should begin career awareness in elementary grades, and provide for career exploration, job shadowing, and accessible labor market information in middle school and early high school years. During the later high school years, the guidance system should be able to provide advice about careers, and not just colleges as is currently the case. Some states are more aggressive than others in incorporating guidance and counseling reform into their system designs.

Maine: Job specialists from Jobs for Maine's Graduates program—an employability skills and support program that operates nationally—will help 9th and 10th graders learn about career opportunities. Specialists will provide support and information to students throughout the apprenticeship period.

Wisconsin: The state has put significant emphasis on career guidance. Youth apprentices are required to complete a career awareness/exploration or state-approved Education for Employment program. Wisconsin has organized a K-12 Guidance policy working group at the state level to make recommendations on the following key issues:

- Ways in which the counseling systems will link the 10th Grade Gateway Assessment of student performance with guidance to students as they choose among the tech prep, youth apprenticeship, and college preparation options;
- Statewide access of high school youth to meaningful and accurate labor market information;
- Helping counselor preparation programs at the state university system to support the state's youth apprenticeship and school-to-work efforts;
- Revision of certification and continuing education requirements for youth counselors; and
- Clear definitions of the roles of business, industry, and organized labor in career education for youth.

Workplace Learning Structure. Youth apprenticeship models demand that employers be proactive and involved in a range of design and implementation issues. Employers must participate in setting occupational skill standards that guide program curriculum, must cooperate on academic curriculum development, and must create quality jobs and work-based learning opportunities. Perhaps the most difficult challenge facing employers is to define, in detail, the work experience, training assignments, and guided learning opportunities that will help students develop practical skills they will need on-the-job. The structure of the work-based learning component of most state systems remains largely unspecified, to be determined through experimentation by demonstration projects or by each local program partnership.

Maine: Work-based learning will follow a systematic schedule of identified work activities, provided by a skilled mentor in a specific occupational area. Work-based training will develop broad skills needed for a segment of an industry or a whole occupational cluster.

Wisconsin: Same as in Maine.

Method of Integrating School and Worksite Experience. Youth apprenticeship differs from work-study, cooperative education and many other high school programs that involve both schooling and work in part because of the close integration and communication between the school and workplace experiences and personnel. That is, youth apprenticeship's pedagogical appeal is the promise of using the workplace as a context and motivator for classroom learning and for an applied, contextual learning that is the preferred learning style for most people. The key to accomplishing this linkage, which is foreign to the ways in which schools and employers now interact, is coordination of school curricula with workplace experiences and coordination and communication between school teachers and workplace supervisors.

This is one of the most difficult aspects of youth apprenticeship, involving a melding of two very different kinds of organizations with very different missions—i.e., schools and firms. Because of the newness and complexity of this critical design element, this is one of the least well-developed aspects of both local programs and state system designs. Both Maine and Wisconsin understand the importance of this integration and hope to develop curricula that can accomplish this goal, and they have made modest progress to date.

Maine: Stated goal is to develop integrated curriculum.

Wisconsin: Stated goal is to develop integrated curriculum.

Certification of Skills. A defining element of youth apprenticeship is its emphasis on certification of skills and on the award of portable credentials recognized by employers in the industry. The federal government has begun a several year effort to encourage industry-led groups to define occupational skill standards for entry level workers that could guide youth apprenticeship and other workforce development programs.

Until such time as there are nationally recognized standards in key occupational and industry clusters, portability of credentials will be limited. However, most states working to create youth apprenticeship systems (as opposed to support for demonstration programs) see the need to tackle the challenge of defining, assessing, and credentialling skills at a statewide or even regional level. Given the stress on contextual rather than rote learning, emphasis is being placed on developing assessment and certification components based on performance and exhibition of work-related problem-solving skills rather than paper and pencil, multiple choice exams.

Maine: Student receives a high school diploma upon completion of 12th grade. Graduates receive a one-year Technical College certificate and a Certificate of Skill Mastery that attests to both academic and occupational proficiencies. Certification of mastery will be based on demonstrating competencies rather than "seat time" in a program.

Wisconsin: As in Maine, the student receives a high school diploma upon completion of 12th grade. Graduates will receive certificate of achievement that attests to both academic and occupational proficiencies. As in Maine, certification of mastery will be based on demonstrating competencies through performance, portfolio, and exhibitions in addition to standardized tests.

Wages. All but one of the twelve states at the state consortium meeting sponsored last April by JFF agreed that paid work must be a central defining element of youth apprenticeship (and that apprentice wages should increase in a structured progression as mastery increases). One issue that is still being hotly debated in states and at the federal level is whether a subminimum wage is a good idea or whether it sends the wrong signals to employers and young people about quality, responsibility and expectations. Maine has developed a creative approach to wages that makes the payment into a stipend payable across the year regardless of the number of hours worked versus the number in class. Wisconsin has rejected the idea of a subminimum wage in its programs.

Maine: Apprentices will earn a stipend of approximately $5,000 per year, paid in installments throughout the year without regard to the number of hours spent at school or the workplace.

Wisconsin: Apprentices will earn money as in part-time employment, with wages set at least as high as minimum wage.

State Governance Structure. With the possibility of federal funding for youth apprenticeship development becoming increasingly likely, the question of how the state organizes the governance of its system and where it places authority for system development is a critical one. In general, given the importance of trusting and effective partnerships to the success of youth apprenticeship, states are exploring governance structures that provide significant representation and involvement of key decisionmakers from employers, industry-specific and statewide employer associations, schools and school districts, postsecondary institutions, organized labor, and state and local government. They are creating or using existing interagency bodies to coordinate state policy, since it tends to cut across the perceived jurisdictions of the departments of labor, education, and economic development/commerce.

Maine: Maine has established the Center for Youth Apprenticeship at the Southern Maine Technical College to drive the system and its implementation. The Center's international advisory board of governors will help Maine's program be guided by world-class standards and methodologies. The Center will guide statewide implementation and coordinate the program among the six regional campuses of the Maine Technical College System. It will develop curriculum and provide technical assistance to Maine schools. A separate policy board, representing business, labor, and education, will set statewide performance standards for apprenticeship occupations.

Wisconsin: Three lead agencies are designing Wisconsin's Youth Apprenticeship Program—the Department of Industry, Labor, and Human Relations (DILHR), the Department of Public Instruction, and the Wisconsin Board of Vocational, Technical, and Adult Education. A statutory Youth Apprenticeship Advisory Council will provide advice and oversight. DILHR is responsible for administering available program funds. Implementation work groups, appointed by the Governor's Cabinet for a Quality Workforce, are developing industry-wide skill standards, work-based curriculum, and mentor certification requirements for the initial industries that will be involved in youth apprenticeship.

Wisconsin is currently proposing to create on office within its Department of Administration to provide policy coordination for all of its school-to-work programs. This proposal will be put forward to the Wisconsin Legislature in the spring of 1993.

Implementation Issues for State Youth Apprenticeship Systems. Even a cursory glance at the diverse design issues that a youth apprenticeship system must resolve is sobering. There is no shortage of implementation challenges facing states that are moving down the road of trying to build better career pathways for all their young people. The complexity of this effort should not come as a surprise—and it is taken as a given by state policymakers and practitioners engaged in this work. The attractiveness of youth apprenticeship—its emphasis on employer involvement, its integration of academic and vocational learning, of school and work experiences, and of high school and post-secondary learning—is at the same time its Achilles heel.

To bring these diverse worlds together to create more structured and obvious routes to occupational advancement is to enter largely uncharted terrain. It will not come easy; but the states with which Jobs for the Future has worked closely in the past year see the potential benefits to individuals, firms, and local an state economies as worth the effort.

Which of these implementation challenges are of highest priority to those states that are working to build school-to-work and youth apprenticeship systems? JFF recently surveyed approximately 40 practitioners from the twelve states that attended the first meeting of the state consortium on youth apprenticeship to identify the issues that were of greatest concern to them. These are, in order of highest priority:

- **Program standards**—For youth apprenticeship to be a better way to prepare young people for tomorrow's economy and jobs, there must be clearly-defined standards that guide education and training providers as they develop curricula, teaching methods, assessment strategies, and new occupational skill certifications. However, for most occupational clusters and most industries, these standards do not yet exist. What can states do to build systems that will be sure to educate and train to "world-class" standards in a complex range of industries and occupations? And how can states ensure that these standards are broadly-defined and do not encourage training in narrow, non-transferable skills that may become obsolete?

- **Encouraging employer commitment**—Youth apprenticeship requires significant employer commitment—to provide jobs and training, to participate in setting standards and designing curricula, to participate in governance boards, and to recruit other employers. States want to know how they can encourage employer participation. They are also concerned that an insufficient number of employers are changing their technology and work organization in ways that will demand more flexible, creative, problem-solving workers. What strategies and incentives—persuasion, technical assistance, or financial—should states consider providing their employer communities, if any?
- **Legal and regulatory issues**—A very practical concern raised by many practitioners at the program level involves the obstacles created by existing state (and federal) laws and regulations, including child labor laws and insurance liability issues. The issues include the number of hours that a 16 or 17 year-old apprentice can be employed, and restrictions on employment in certain occupations defined as "hazardous occupations." Can states loosen some of these constraints in ways that do not compromise student well-being, health,and safety?
- **School structure and teacher certification**—State policymakers are uncertain whether school districts are flexible and supportive enough to undertake the significant changes in schedule, instruction and curriculum, and staff development that new school-to-work strategies require. Youth apprenticeship is more revolutionary than evolutionary in what it asks from schools. Youth apprenticeship demands a redesign of school structures to facilitate the integration of academic and vocational learning and of school and work-based learning experiences. It requires recognition of a pedagogical approach that emphasizes active, contextual learning. To get from here to there, teachers, school districts and schools of education will have to redefine traditional notions of professional development for both classroom teachers and worksite personnel involved with students.
- **Issues of equity and access**—States policymakers are concerned about how to strike a balance between serving the needs of employers in ways that can attract and keep them involved and serving the needs of young people and their parents, particularly those with disabilities, limited English proficiency and other challenges that employers may prefer not to deal with. If youth apprenticeship becomes a program that is not accessible to the at-risk populations that the nation must do a better job of reaching and serving, then this new direction will come at the cost of greater inequality in service and opportunity. This will be a difficult balancing act for state policymakers pushed and pulled by the preferences of different program partners.
- **Curriculum design**—Youth apprenticeship is starting almost from ground zero with respect to high benchmark standards and both classroom and worksite curricula that can ensure that students meet those standards. The leading states have established ambitious efforts to reach statewide coverage within a few short years across a variety of industry or occupational categories. Developing curricula at this scale, especially among school districts and states that are financially strapped, is a daunting task. What can states do, singly or collectively, to facilitate curriculum development and adoption? In Tech Prep, the Center for Occupational Research and Development (CORD) has played a critical role in the development of applied academics course curricula that are now widely used. Can CORD's course be used in a youth apprenticeship program? What other materials, modules, and curricula are needed and how can they be created efficiently and cost-effectively?

Conclusion. At the state level as at both the federal and the local program level, interest and experimentation with youth apprenticeship continues to grow—despite widespread acknowledgement of the complexity and the challenges inherent in moving toward this model. The failure of our schools and our workplaces to prepare non-college-bound young people for decent careers has set in motion a wave of experimentation and collaborations at the local level and a concerted effort by a over a dozen states to create a system for this large segment of the youth population where none currently exists.

This enthusiasm will continue to grow—and will increase significantly if federal legislation is passed to extend these efforts. There has been much activity to date and many states have begun to make progress. Of course, we are only at the beginning of this cycle of innovation. It remains to be seen whether youth apprenticeship as currently defined in this paper and by Jobs for the Future's state consortium emerges as a viable model supported by a vital system of public-private and state and federal supports.

It appears increasingly clear, though, that whether or not youth apprenticeship as currently conceived takes hold, the basic challenge of improving the school-to-work transition in this country will continue to receive attention and resources. Moreover, it is likely that those new systems and structures that do emerge from this period of experimentation will conform to many of the guiding principles of youth apprenticeship and will involve significant changes in the ways we construct relationships between employers and schools, between government and the private sector, and among the many fragmented and disconnected efforts to improve career prospects for young people. This is an exciting, if volatile, time for policy strategies for investing in youth.

Youth Apprenticeship Legislation in States

	Arkansas	Georgia	Maine	Oregon	Wisconsin
Citation	Acts 546, 553 and 10 of 1991	Title 20, Chap. 2, Art. 6, Code of Georgia (H.B. No. 1931, enacted 1992)	S. P. No. 970, enacted March 26, 1992	H.B. Nos. 3133, 3474, 3469 & 3565 (effective July 1, 1991)	Chaps. 101.265 & 15.227, Wis. Stats. (created by 1991 Wis. Act 39).
Program Objectives	Youth Apprenticeship Program will provide non-college bound youth with additional opportunities to develop meaningful job skills. Statute provides for specified number of youth apprenticeship demonstration projects during 1991-1993.	Permit 11th and 12th grade students to receive secondary credit for work as an apprentice in positions that have been certified by the Department of Labor as highly skilled jobs for which there is a skilled worker shortage.	Establish youth apprenticeship as a systemwide educational approach within State of Maine. Requires working group to file report with the governor and the legislature by Nov. 30, 1992, defining a youth apprenticeship approach, governance structure, finance, standards, and certification.	HB 3565 establishes system of professional and technical certification as a part of comprehensive approach to workforce preparation. HB 3469 provides for a 'youth apprenticeship pilot program' of expanded pre-apprenticeship training at the high school level.	Planning group has established the following objectives: • Improve transition from school to work; • expand career training options; • improve eligibility for apprenticeship system; • involve business in planning, developing, evaluating program; • assess work skills prior to employment; • facilitate entry of minorities and women into skill training and college.
Governance Structure	Vocational and Technical Division of the Department of Education will develop and implement a Youth Apprenticeship Work-based Learning program with input from Arkansas Apprenticeship Coordination Steering Committee.	Department of Education, in consultation with the Department of Labor and the Department of Technical and Adult Education, is to develop standards, procedures, criteria, and administrative requirements.	Department of Education, Department of Labor, and Maine Technical College System will develop pilot sites. The Center for Youth Apprenticeship has been established on the campus of Southern Maine Technical College to direct research, policy development, and other program activities.	Establishes a Workforce Quality Council to develop overall policies, objectives and goals for workforce training, including the system of professional technical certification. Requires Apprenticeship and Training Council and Division of Vocational Education to establish youth apprenticeship pilot program.	Creates multi-sector Youth Apprenticeship Advisory Council, housed within Department of Labor, Industry and Human Relations.

Youth Apprenticeship Legislation in States

	Arkansas	Georgia	Maine	Oregon	Wisconsin
Program Design	Eligible students will go through a 3-4 year program beginning at end of 10th grade. Program connects high school with 1 or 2 years of postsecondary learning. The program integrates worksite experience with academic and vocational learning in the classroom and provides a student with both academic and occupational credentials.	Requires Georgia Department of Education to establish policies and standards to include, at a minimum: • detailed employer-apprentice training plan; • minimum of 144 classroom hours of related academic instruction; • minimum of 2,000 hours of on-the-job training; • progressive wage schedule; • on-site evaluation of performance; • training remediation, as necessary; • broad range of skills, but focused on manufacturing and engineering technology, administration and office technology, and health care; and • structural linkage between secondary and postsecondary components leading to award of high school diploma and certificate of occupational skills.	Program model proposed in response to legislation requires: • general career exploration to begin in 9th grade; • testing and career exploration in 10th grade, with assessment based on Maine's common core of learning and certificate of initial mastery; • apprenticeship begins in 11th grade with 20 weeks at a vocational high school and 30 weeks working for an employer; • apprenticeship continues in 12th grade with 14 weeks at a vocational high school and 36 weeks working for employer; • apprenticeship continues in third year with 14 weeks at a technical college and 36 weeks working for employer; • high school diploma awarded at end of 12 grade; and • certificate of skill mastery awarded at end of 13th grade	Youths in grades K-10 will study to earn certificate of initial mastery, after which students will select a college preparatory path or one of a series of two to five-year professional and technical degrees. Program includes: • career development; • attainment of Certificate of Initial Mastery by end of 10th grade, complete with community-based alternative learning centers; • entry beginning in 11th grade into structured work-based learning apprenticeships integrated with applied academics; • articulation into postsecondary learning; • competency-based learning; • award of a Certificate of Advanced Mastery upon successful completion.	Requires Department of Industry, Labor and Human Relations (with cooperation of Dept. Public Instruction and Board of Vocational, Technical and Adult Education) to develop program model. Program includes: • career development; • good performance on 10th Grade Gateway Assessment; • competency-based classroom instruction integrated with work-based employment; • structured work-based learning within specific occupational area under supervision of skilled mentor; • completers receive high school diploma state certificate of academic and occupational proficiency; • completion permits partial credit in traditional apprenticeship, advanced standing into technical college program, or facilitated entry into four-year college.

Youth Apprenticeship Legislation in States

	Arkansas	Georgia	Maine	Oregon	Wisconsin
Funding	$3,000,000 each year. In 1991, nine planning grants were funded with $10,000 each.	None specified in legislation.	None specified in legislation.	$650,000 for developmental sites; $100,000 for worker skills assessment and benchmarks; $150,000 for technology education and applied academic curriculum; $400,000 for teacher and counselor training. Tax credit provided for employers who sponsor youth apprentices.	Initial appropriation of $150,000 in planning funds plus two full-time positions.
Eligibility	Available to 11th grade students in areas that are implementing demonstration sites.	Any 11th or 12 grade pupil or pupil aged 16 or over in any public school in the state may enroll in a youth apprentice program approved for credit by the Department of Education.	Any 11th grade student in state.	CAM system is available to any student who passes CIM. For youth apprenticeship, student must be 16 years of age or older and enrolled in a voc/tech program.	Eligibility determined by interest, passage of 10th grade gateway assessment (to be required of all students), and availability of an approved job placement.
Skills Standards	Under development.	To be developed by program	To be developed by industry-specific working committees.	Under development.	Under development by special committees consisting of business, labor, education and trade association representatives.
Certification	To be developed.	To be developed.	To be developed.	CIM and CAM are currently under development.	To be developed by DILHR in cooperation with business and industry
Level of Activity	Planning of pilot projects began in 1991. Funding for the implementation phase of the program began in March 1992.	Department to develop pilot projects for FY 1994 and FY 1995 and shall implement comprehensive program for all school systems by FY 1996.	Pilot projects to begin in fall of 1992 and statewide coverage in all high schools and regional vocational centers by 1996-97 school year.	Task forces continue to meet to develop program design and standards.	Program standards are being developed for initial programs in fall of 1992. Planning for statewide coverage.

THIS CHAPTER CONTAINS:

Voices from the Field

A Framework for Federal Youth Apprenticeship Legislation

Proposals for Federal Youth Apprenticeship Legislation—
A Jobs for the Future Perspective

Youth Apprenticeships: Improving School-to-Work Transition for the 'Forgotten Half'

Matrix: Federal Youth Apprenticeship Legislation from the Last Congressional Session

Also Available: Improving the Transition from School to Work in the United States

"In Germany, where we have eight manufacturing plants, virtually 100 percent of our manufacturing workforce comes through the apprenticeship program.... They are the only source, not just the primary source, of our new employment. And as a result of that, we and other companies in Germany, where this has been in place for a great many years, are willing to significantly fund this program....I think that business in this country would be willing to step up and take its share of the funding of a national program."

—Edwin Artzt, Proctor and Gamble, Economic Conference, 12/14/92

"You want to ensure that kids placed in an apprenticeship program are not used to replace existing unionized workers, existing workers anywhere, but particularly unionized workers. So that you would not fire someone who is making 15 bucks an hour and replace him/her with one of the apprentices who was brought in at minimum wage."

—Service/public sector union official.
From JFF's *Union Perspectives on New Work-based Youth Apprenticeship Initiatives*, 1/92, p. 16

"Employers are certainly not going to take a high school student, bring them into a plant, lay off an older worker, and say that the young student can do the work...The youth will only enhance our educated and skilled workforce that we have to have to compete with other countries. I would hate to think that we would set our younger generation aside because we felt intimidated by them affecting our jobs in some way."

—Industrial union official, ibid., pp. 17-18

"[Youth apprenticeship] will have to work by example. It will have to work in a few areas, and the people who succeed in those areas will tell their stories to employers and school systems."

—Dr. Robert J. Lerman, chair, Economics, American University, and JFF National Advisory Group Member.
From Industry Week, 1/20/92, p. 1

A Framework for Federal Youth Apprenticeship Legislation: A Consensus Document

In early December 1992, a group of individuals representing the collective wisdom of about two dozen organizations (including Jobs for the Future) active in education reform, youth policy, and workforce development published a Framework for Federal Youth Apprenticeship Legislation for consideration by the Clinton Administration. The result of weeks of hard work, the document represented a large measure of consensus and has become the starting point for further legislative proposals currently under development in Congress and by the Admininstration.

This Framework proposed the following expanded definition of the essential elements of youth apprenticeship:

Youth apprenticeship is a comprehensive approach to learning that includes all of the following essential elements.

1. Integration of school-based learning with work site learning.

2. Continuous academic instruction to attain proficiency in at least the core subjects of English, mathematics, geography, history, and science, consistent with state education standards and any voluntary national standards that include the competencies and credits needed to permit students to pursue the full range of postsecondary education options.

3. Occupational and technical instruction to attain:

- Broad vocational experience, including experience in and understanding of all aspects of the industry—i.e., planning, management, finance, principles of technology, community issues, labor issues, health, safety and environment, as well as technical and production skills;
- Occupation-specific knowledge, skills, and abilities specified in broadly accepted (national where available) industry standards;
- General workplace competencies, including the ability to manage resources, work productively with others, acquire and use information, understand and master systems, and work with technologies.

4. Established standards of academic competency and assessments which appropriately measure interests and aptitudes necessary for success in specific careers;

5. A work-based learning component that includes:

- A formal training agreement between the school, the student, the employer, unions where appropriate or other representatives of the workers, and, if applicable, parents, outlining respective roles and responsibilities;
- A formal worksite training plan;
- Mentoring by employees; and
- Paid work at progressively higher wage scales.

6. Formal connections to:
- Career guidance, exploration and counseling beginning no later than 9th grade to support and inform student choice; and
- Remediation to assist students to achieve the educational standards required for entry into youth apprenticeship.

7. A range of support services students need for successful participation that include:
- Additional career guidance and counseling to help youth apprentices prepare and plan for their future employment and education;
- Remediation to help youth apprentices meet the educational, occupational, and work-based demands of participation in youth apprenticeship.

8. Established outcomes that include:
- Award of a broadly-recognized certification of occupational skills based on national occupational skill standards where available. This certification is in addition to academic qualifications earned which at minimum include a high school diploma.
- Skill development that enables continuation of learning beyond the 12th grade through structured articulation agreements with postsecondary education programs, registered apprenticeship programs, or other structured employer-sponsored training programs.

9. Active involvement of employers, school, students, parents, unions, and CBOs, where appropriate, in program design and implementation.

10. Assurance that state and federal laws relating to safety, health and well-being of workers apply to youth apprenticeship and that youth apprentices do not displace current workers.

11. Criteria for entry that are consistent with federal civil rights laws governing federally-funded education programs and governing employers, and that are validated as essential to successful performance of the required work. (Perkins Act provisions governing access and non-discrimination for special populations in the full range of employment-related programs would also apply.)

12. Systematic efforts to place graduates in permanent, full-time employment in the field for which they have been certified, or to assist them in pursuing future schooling or work preparation.

Proposals for Federal Youth Apprenticeship Legislation

A Jobs for the Future Perspective • February 1993

Introduction

There is little doubt that some form of school-to-work transition/youth apprenticeship legislation will pass during this session of Congress. On the campaign trail, President Clinton advocated the creation of a national youth apprenticeship system for the United States. In his State of the Union address, he reiterated that commitment. Last year, at least eight major bills were introduced in Congress that would provide funds for youth apprenticeship. According to one count, more than two dozen bills were introduced that made some mention of youth apprenticeship.

Support for doing something to improve the school-to-work transition and career options for young people is broad and bi-partisan. But what should that something be? What should a federal initiative include and how should it be conceived?

During the past few months, many people and organizations have been working to develop suggestions for the design of a federal youth apprenticeship initiative that can encourage experimentation and learning at the program level and also set in place some basic building blocks for a national career preparation system. Jobs for the Future has been part of several of these collective efforts. In the following pages, we synthesize the results of these efforts and propose our vision of the shape federal action should take.

A Short History of Past Proposals: From Demonstrations to System-Building

The first piece of federal legislation to propose explicit support for youth apprenticeship was introduced in 1991. Since then, a number of bills have been introduced in Congress. They can be clustered into a few distinct approaches.

One category of legislation focuses on seeding local demonstration projects and funding research on the effectiveness of the pilot projects. One bill, for example, proposes establishing demonstration programs linking secondary and post-secondary schools, employers and labor. It also proposes establishing an independent institute to conduct research, evaluate the demonstrations and make recommendations to Congress for nationwide programs. This kind of bill focuses primarily on local program experiments; there is little attention paid to federal or state infrastructure or to how youth apprenticeship might relate to existing education reform and workforce development initiatives.

A second category of federal legislation to encourage youth apprenticeship has focused on tax code changes to encourage employer participation. Several bills introduced in the last session would encourage businesses to make donations to tax-exempt organizations set up to administer education programs in conjunction with local school systems, community colleges, trade schools and registered apprenticeship programs. Employers (and unions in one version) that contributed to the tax-exempt organization would receive an additional tax credit (of 15-20 percent) for that contribution.

A third category of legislation on youth apprenticeship introduced in the last session has balanced funding for local programs with development of some of the institutional supports and arrangements essential to an effective school-to-work transition system. One such bill, introduced by members of Congress from two different states that are actively developing youth apprenticeship, proposed the following:

- A compact between the Department of Labor (ETA) and the Department of Education (OVAE), in consultation with the Department of Commerce, acknowledging the importance of interagency cooperation;

- Joint administration by these offices of grants to both local programs and state governments, recognizing the critical need to build institutional capacity at the state level if there is to be any lasting impact; and

- A mandate to the two lead departments to design a youth apprenticeship system (not just fund demonstration projects) and to identify national industry skill standards.

Soon after most of these bills were introduced, they were superceded by the realities of Presidential politics. In mid-1992, the Bush Administration introduced its National Youth Apprenticeship Act. This legislative proposal includes some funds for demonstration projects and for state activities to promote youth apprenticeship. It defines the essential elements of youth apprenticeship and outlines a federal-state-local framework for encouraging partnerships among business, labor, and schools on the local level to develop programs that include those elements. The bill refers to the need for skill standards but does not include provisions for the development of standards.

If this bill served as the Republican standard-bearer in 1992, the dominant Democratic vehicle has been the High Skills, Competitive Workforce Act of 1991, co-sponsored by Sens. Kennedy (D-MA) and Hatfield (R-OR) and by Reps. Gephardt (D-MO) and Regula (R-OH). This bill includes funding for demonstration projects which combine classroom and on-the-job learning for high school age students. These demonstrations, though, are part of a much larger bill designed to stimulate cooperation by business, labor, schools and colleges, and state and local governments to build a new human resources development system for the nation. Skill standards, assessment of work-related competencies, curriculum reform, and credentialling are all part of this extensive package, which incorporates reforms advocated in the report America's Choice: high skills or low wages!

In general, Congressional thinking on youth apprenticeship evolved in significant ways from the first bill introduced to the more recent proposals. These changes include:

- Greater attention to interagency coordination at the federal level, particularly between the Departments of Education and Labor;

- Efforts to specify the roles and responsibilities of different governmental levels (federal, state, and local) in the creation and implementation of a school-to-work transition system, with particular emphasis on the critical role of states;

- Emphasis on strategies to strengthen private sector institutions and public-private partnerships whose participation is critical to building and sustaining youth apprenticeship;

- Recognition that youth apprenticeship should be part of a broader, comprehensive national education and training system and that the development of voluntary occupational skills standards is one way to link youth apprenticeship to other skill development initiatives;

- Recognition that expansion and support of youth apprenticeship should be seen as one component of building a school-to-work transition system and that, as such, it is very much a vehicle for education reform.

This evolution is reflected in most of the proposals that have been developed and circulated since the election. It is likely that federal legislation proposed by the Administration will be in line with this shift from thinking about youth apprenticeship as another program to be piloted and tested to conceiving of youth apprenticeship as an "entering wedge" for building a new school-to-work transition—and human resource development—system in this country.

The Tenor of Current Legislative Proposals:
Toward a New School-to-Work Transition System

In the weeks before the Presidential election, a few different informal working groups began meeting to develop proposals for the new Administration on youth apprenticeship and the school-to-work transition. While the various proposals differ in some respects, there is remarkable consensus about the basic direction that federal legislation should take. Above all, there is a broad consensus that what the nation does not need is a new program, divorced from other existing efforts, doomed to marginalization and limited impact. Instead, these proposals argue, federal support of youth apprenticeship must be part of a more comprehensive strategy to create a coherent, effective, and efficient system for preparing young people for careers and adults for lifelong learning.

In a recent study for the Competitiveness Policy Council Richard Kazis of Jobs for the Future highlights the following basic elements of the consensus underlying current proposals for federal action on youth apprenticeship and the school-to-work transition:

- The nation needs **a system to which all young people have access,** not just those who meet income guidelines or other special populations. Narrow targeting, which stigmatizes and marginalizes programs, should be replaced with more inclusive eligibility criteria.

- We must **build a system, not just fund a series of demonstration projects.** Neither employers nor school nor young people need another short-term program layered on top of an already chaotic welter of education reform initiatives.

- There must be **a new emphasis on career education and guidance**. Career education should become part of the K-12 curriculum so that, like our Swedish counterparts, our children have a rich understanding of the industries that drive our economy and the occupational opportunities within them. Guidance counseling in high school should be about careers, not just about college choices.

- The system must be rooted in **the commitment of quality employers to provide work and learning opportunities** for young people. This would open up the possibility of using jobs and training as an incentive to hard work and achievement in school. And it would connect young people to the labor market in a more systematic and beneficial way.

- **A broad, diverse set of career pathways must be available** for young people wanting to explore and then enter different industries, occupations, and specializations. No single program design will answer the needs of all communities, employers, schools, and young people.

- Curricula and teaching strategies must emphasize **active, contextual learning, broad rather than narrow skill training, and the integration of academic and vocational education.** The pedagogy of school-and-work integration should reflect cognitive science research on the power of learning-by-doing and recognize the growing importance of higher order thinking skills to productive employment and citizenship.

- **The system should not foreclose the possibility of higher education.** The "school-to-work transition" is a misnomer. The end of compulsory schooling can no longer serve as the end of formal learning. Instead, the system should encourage a rich set of routes to lifelong learning in workplaces and educational institutions. Increasingly, we must think in terms of "school-and-work integration."

- An effective system must generate and publicize **more—and more systematic—information** upon which students and employers can base labor market decisions. Employers should have easier access to useful information on student achievement and better ways to judge applicants' skills and competencies. Students should have more complete knowledge of the performance of different public and private training providers and the employment and income prospects of different careers. Policymakers and the public need more accurate information on the career trajectories of young people after they leave school.

Either explicitly or implicitly, emerging proposals for federal legislative action incorporate most or all of these elements.

One Proposal: A Five-Year Period of Experimentation and Capacity-Building

One of the informal groups working to develop a proposal for federal legislation, comprised of individuals representing about two dozen organizations involved in youth policy, education and training, and youth apprenticeship (including Jobs for the Future), released a Framework for Federal Youth Apprenticeship Legislation in early December. This document proposes a five-year initiative to develop capacity throughout the U.S. for youth apprenticeship collaboratives among employers, educators, community-based organizations serving youth, and unions, where appropriate. The legislative design melds a five-year experimental time horizon with a vision of youth apprenticeship as "one component of a comprehensive national education and training system."

The individuals who worked on this proposal advocate a period of experimentation and building at both the local and state levels. A five year period was chosen because it was seen as the minimal amount of time needed to: build strong institutional and public support; define and firmly establish the new organizational tasks required of employers, employees, and schools; and learn sufficient lessons from the field to determine the appropriate legal framework for expanding and sustaining youth apprenticeship. At the end of the five-year period, it was argued, there would be a greater knowledge base and firmer institutional infrastructure to support a larger effort.

The proposed legislation was written with the following purposes:

- Define the essential elements of youth apprenticeship (the group's definition is reprinted elsewhere in this set of resource materials);
- Provide for federal assistance to institute youth apprenticeship nationwide in conjunction with states, localities, business, labor, educators and community organizations;
- Develop through technical assistance and financial support, where appropriate, the capacity of key partners and their organizations to implement youth apprenticeship;
- Foster collaboration among government agencies, schools, employers, employees, CBOs and other organizations in the design and implementation of youth apprenticeship;
- Encourage, within the essential elements of youth apprenticeship, flexibility in approaches in order to meet the needs of differing occupations, industries and local economies; and
- Support continued research, development, and evaluation to:
  - determine best implementation strategies
  - develop occupational skill standards where they do not exist
  - develop quality measures for youth apprenticeship programs
  - determine the institutional arrangements needed to support a nationwide system.

Federal funds would be allocated for:

- Grants to states to carry out and implement a statewide youth apprenticeship initiative and to assist local organizations with program implementation;
- Grants to employers and employer groups to develop capacity to implement the work site learning components and to participate at the local level in program implementation;
- Grants to develop and disseminate information on "lighthouse" programs; and
- Research, development, information dissemination and technical assistance activities coordinated at the federal level.

Jobs for the Future's Proposal:
Moving Aggressively Toward Scale and System

Being part of the working group that prepared the above proposal, and being asked frequently by the media and others what we as an organization would propose, has encouraged us to pull together our own thinking on federal legislation and what it might look like. In the following pages, we present—for comment and discussion—our current thinking on how the federal government might proceed to develop a youth apprenticeship initiative. This proposal, which incorporates lessons from our work in the field and from discussions with many practitioners and policymakers at the local, state, and national levels, emphasizes ways in which a federal initiative can be structured to move more rapidly toward significant scale and impact—and toward a national system that will serve a significant proportion of young people as they prepare for career choices.

This proposal envisions a five-year design and development process in conjunction with leading states and industries, as the first step toward creating a national system of work-based skill acquisition that serves everyone from high school students to employed or dislocated adults. We welcome comments and reactions.

One of the dilemmas facing Congress as it considers legislation is how activist a role the federal government should play in promoting youth apprenticeship. As Richard N. Apling of the Congressional Research Service has written:

Should that role be limited to technical assistance and research, allowing States, local governments, and the private sector to decide how much this country invests in youth apprenticeships? Should the Federal Government assume more leadership but at a relatively slow pace—investing Federal resources first in demonstrations and planning before making a decision for or against a nationwide program? Or should the Federal Government take advantage of what some see as an infrequently occuring "window of opportunity" for a national initiative and authorize a nationwide youth apprenticeship program—hoping to work out problems and improve the program over time?

JFF believes that there are few moments when political conditions are ripe for significant change in the way our social policy systems are structured and function. This appears to be one of those moments. We argue, therefore, for seizing this opportunity to create the basic elements of a coherent school-to-work transition system for all young people, with youth apprenticeship as one of its key components.

To confront head-on the challenges of reaching significant scale and institutionalization and of ensuring program flexibility and diversity at the local level, our proposal emphasizes the following:

- Defining youth apprenticeship as part of mainstream education reform strategies for the last two years of high school (the "upper division" years) and the first post-secondary years, tying entry into a youth apprenticeship option to successful demonstration of high educational performance (ideally certified by a Certificate of Initial Mastery), and developing youth apprenticeship as part of a range of career preparation options for young people;

- Building on the existing gamut of programs linking school and work for in-school youth (cooperative education, Tech Prep, career academies, etc.) rather than starting entirely from scratch and creating parallel, competing efforts;

- Creating an institutional vehicle for setting broad performance standards and assessments for college-level (one to four year) professional and technical certificates and degrees covering a limited number of occupational clusters, each of which provides a career path into many occupations in a number of related industries;

- Establishing a competitive grant program that will make significant five-year grants to leading states to design and implement the new system, beginning with planning grants for all states and moving quickly to larger grants which would go first to leading states and then to other states as they learn from the "pioneers";

- Targeting resources and incentives to address two of the biggest obstacles to diffusion and replication: employer participation, and teacher preparation and training; and

- Creating interagency partnerships at the federal and state levels and an intergovernmental partnership between the federal, state and local levels.

This legislative proposal views the transition of young people from school into careers as the initial foundation for a comprehensive human resource development system. Because the systems that support young people as they begin their careers and the systems that enable adult workers to continue learning throughout their work lives should be compatible and closely linked, the legislative proposal gives joint responsibility for the school-to-work initiative to the Departments of Education and Labor.

The bill would distribute new funds through both federal agencies. Labor Department funds would be devoted primarily to system-building functions at the national, state, and local levels, including: standards setting; expanding the capacity of employer institutions; creating state and local labor market councils; and coordinating technical assistance, research and development (incuding continued program development of "youth apprenticeship" models). A significant portion of these funds would be awarded to states through a competitive grants process that would select ten to fifteen states each year for five-year grants for system-building activities.

Department of Education funds would be devoted primarily to local program support, including expansion of existing school-to-work programs (e.g., Tech Prep, co-op education, career academies and other efforts that do or could incorporate work-based learning) and a new, targeted ninth and tenth grade academic support program (described in more detail below).

At the heart of this proposal is a vision of a restructured high school and post-secondary education system in which most students would spend their "upper division" years in a career-focused major that spans at least one year of post-secondary education, integrates academic and vocational education, combines school-based and work-based learning, and leads to a certificate with currency in the labor market. All students would have access to a wide range of majors that reflect local labor market realities. Each career-focused major would be designed and managed by a consortium that included employers and post-secondary educators; trade unions and community-based organizations could also lead and/or participate in consortia.

Majors would be created in broad occupational fields such as health, finance, law, government, teaching, communications, and child care, as well as in such traditional career areas as manufacturing and construction. A system would be built from such existing models as career academies, vocational magnets, Tech Prep, co-op education, and youth apprenticeship pilots.

This legislative proposal would be linked to an education reform strategy requiring states to put in place some form of initial mastery certificate for entrance into a program major. Because of this, new funds would be provided (via a Chapter 1-like concentration formula) for high schools to provide extra help for ninth and tenth grade students who are farthest behind. Such funds could be used for accelerated learning programs, for the creation of special charters, for after-school and summer programs, for service learning projects, and for tutors or counselors.

This new system would be coordinated at the local level under the aegis of newly created regional education and employment boards, that would identify local labor market needs, recruit employer participation, set annual performance goals, and monitor program performance. Each high school in the region would be assigned a school-based career specialist, jointly funded by the school district and the education and employment board, whose function would be to act as the "glue," brokering between schools, participating employers, and students.

The key to making this legislation work would be empowering new state and local education and employment councils to coordinate the more effective utilization of all existing resources, including the state and local funds now supporting general and vocational education in the high schools as well as federal vocational education, JTPA, and student financial aid funds. The goal over time is to create a single school-to-work system that brings together programs and services that are now driven by funding streams and bureaucratic jurisdictions rather than the needs of students, schools, or employers.

Key federal, state, and local elements include the following:

Federal Roles

1. The federal government would issue grants to states. All states would receive initial planning grants. Upon approval of state plans by an interagency group appointed by the Secretaries of Labor and Education, states would receive larger implementation grants on a staggered schedule, with those states whose plans are approved first receiving implementation grants in the earlier rounds. The model for this proposal is the negotiating team process used in the NSF's State Systemic Initiative for Math and Science.

Leading states will be identified by a set of criteria that include:

- A decision to eliminate the general track over time and to introduce a Certificate of Initial Mastery;
- Strategies for moving existing school and work programs in the direction of youth apprenticeship;
- Demonstrated participation and involvement by high quality employers;
- Creation of a state level policy council to coordinate development of the school-to-work transition/youth apprenticeship system and to integrate those efforts into a comprehensive workforce development system for young people and adults.

2. A National Board of Technical and Professional Standards would be created as a Congressionally-chartered but independent, private not-for-profit organization. The Board would set broad performance standards and assessments for college-level (one to four year) Professional and Technical Certificates and degrees in a limited number of broad occupational clusters. Members of this body, appointed by the President, would be leaders from business, labor, secondary and post-secondary education, government, and advocacy groups.

3. The Secretaries would jointly fund and administer resources for research, development, technical assistance, and professional development to speed and improve implementation. Particular attention should be paid to: 1) strategies for increasing employer participation; and 2) professional development opportunities and strategies for instructional staff in youth apprenticeship and other work-based learning efforts.

State Roles

1. Federal grants to states would be made to the Governor.

2. States would be responsible for creating and implementing a state plan for improving the transition from school to work and for encouraging program innovation at the local level, following general guidelines set by the federal government that emphasize several basic design elements, including:

- the integration of academic and vocational learning;
- the integration of school and work learning experiences;
- the integration of secondary and post-secondary learning; and

- the establishment of industry-recognized standards and certifications.

State plans should reflect a commitment to: engage in significant reform of the high school educational structure, so that a significant proportion of all in-school youth can be served; and promote coordination between this and other state workforce development initiatives.

3. States should be required to create a Human Resource Policy Council broadly representative of the key constituencies, including: employers, their employees, secondary schools, vocational education, community colleges, and community-based organizations. The purpose of this Council would be to consolidate and coordinate public funding sources and manage support functions for local reform efforts. Ultimately, this Council would supercede and replace more narrowly-mandated state education and employment-related councils.

This body would be responsible for the following functions:

- Creation of state plans
  - Review and/or approval of local plans
  - Control over flow of federal funds
- Standards development
- Credentialling (and licensing where appropriate)
- Program certification and evaluation
- Professional development and technical assistance
- Program and curriculum development
- Information systems

4. State grants could be used for program and system-building activities, including: start-up costs of "lighthouse" programs; curriculum and staff development; the development of performance standards and assessment tools; seed money for employer consortia or other third party intermediaries that provide the "glue" for participating young people as they move between schools and employers.

Local Roles

1. States would pass funds through to the local level for support of programs that promote restructured high school experiences and career opportunities built around the creation of career-focused majors for upper division (i.e., 11th through 13th grades) students. Funds would be available for expansion of existing school-to-work programs (including Tech Prep, co-op education, career academies, and programs currently referred to as "youth apprenticeship") and for the development of new efforts.

3. For ninth and tenth graders least likely to be able to qualify for the career-focused majors because of academic or other problems, a targeted academic support program would be created, with federal funds flowing directly to LEAs according to a Chapter 1-like concentration formula.

3. Local Education and Employment Boards broadly representative of the employer, education, and training system communities in established labor markets would be created. These Boards would identify labor market needs, recruit employer participation, set annual performance goals and monitor program performance.

Conclusion: A Call for Comments

Jobs for the Future welcomes comments and reaction to both the general and specific elements of the above proposal. We believe it addresses many of the challenges the nation faces in trying to move quickly but effectively, and in trying to support not only program innovation but also systemic change at the national, state, and local levels. At the same time, we know that there are many aspects of this proposal requiring further development and debate. We welcome any and all responses.

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CRS Report for Congress

Youth Apprenticeships: Improving School-to-Work Transition for the "Forgotten Half"

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Congressional Research Service • The Library of Congress

YOUTH APPRENTICESHIPS: IMPROVING SCHOOL-TO-WORK TRANSITION FOR THE "FORGOTTEN HALF"

SUMMARY

Recently, concerns have arisen about the welfare of students who pursue little or no education after high school. This group is sometimes termed the "Forgotten Half" because about one-half of all high school students receive no further formal education beyond high school. Concerns for this group include their dramatically declining real wages since the mid-1970s and their particular difficulty making the transition from school to jobs in the adult labor force.

This report examines one of the most widely discussed programs to aid the "Forgotten Half": the youth apprenticeship. Beginning in the last 2 years of high school and possibly extending into postsecondary education, youth apprenticeships link learning in school with on-the-job training and work experience. Adult mentors guide students' experiences on the job. Students often rotate from job to job at the work site to obtain a broad view of related occupations and skills. Successful programs depend on close working relationships among schools, business, and labor. In addition, success may depend on an independent party to assist in planning and implementing the apprenticeships.

Three overarching Federal policy issues with respect to creating a national youth apprenticeship system are:

- Should the Federal Government initiate a national youth apprenticeship program?
- Should a national youth apprenticeship program be integrated into current Federal programs, or should a new, separate program be authorized?
- Should the Federal effort proceed incrementally with demonstrations and research or move directly to a full-scale national program?

Integrating a youth apprenticeship program with an existing program reduces problems of overlap but might result in a low-visibility program with little or no funding. Authorizing separate youth apprenticeships could raise the visibility of the program but lead to problems of coordination, duplication, and overlap with existing programs. An incremental approach to a national youth apprenticeship program allows testing various strategies before committing to a full-scale, fully funded program. A drawback is that it is difficult to ensure that a full-scale program will emerge even if demonstrations and research indicate that such an effort is warranted. Immediately authorizing a national youth apprenticeship program takes advantage of the apparent "window of opportunity" to create such a program. However, it runs the danger of wasting scarce resources by allocating funds to States, local governments, and school districts that are not ready to implement youth apprenticeships.

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YOUTH APPRENTICESHIPS: IMPROVING SCHOOL-TO-WORK TRANSITION FOR THE "FORGOTTEN HALF"

INTRODUCTION

Recently, concern has been growing about the large group of students who pursue little or no education after high school. This group is sometime termed the "Forgotten Half" because about one-half of all students do not pursue schooling beyond high school and because this Nation invests relatively few resources on these students. One concern is the decline in real wages this group has experienced since the mid-1970s. Another concern is the difficulty this group faces in making the transition from school to work. Although there are a number of suggestions for easing this transition process, perhaps the most widely discussed is the youth apprenticeship.

Although a good deal has been written about youth apprenticeships, most of what we know comes from analyses of programs in other developed countries such as Germany, speculations on how foreign approaches might be changed to succeed in this country, and descriptions of a handful of small American demonstration programs. Given the paucity of detail about American youth apprenticeships, any discussion of their key elements and policy issues must be tentative. The discussion here is based on the current literature and visits to three demonstration sites in Williamsport, Pennsylvania; Broome County, New York; and Pittsburgh. The Williamsport and Pittsburgh sites are part of the Pennsylvania Youth Apprenticeship Program. Broome County is the site for the Cornell Youth Apprenticeship Demonstration Project. This report contains quotes from teachers and other school officials, participating employers, and union members involved in these three programs. These quotes have been included to provide first-hand opinions of people working to invent American apprenticeships. Quotes are meant for illustrative purposes only and are not meant to convey a Congressional Research Service (CRS) position or to represent other demonstration programs, teachers, employers, or workers.

The report begins with an overview of what youth apprenticeship programs are--their key features and how they differ from current programs. Next the report reviews concerns about the "Forgotten Half"--including declining wages, difficulties in making the transition from school to work, and possible skill deficiencies--and how youth apprenticeships might address problems facing this group of students. The third major section of the report discusses possible Federal roles for implementing a national youth apprenticeship program--including possible modifications to current programs and creation of a separate youth apprenticeship program. The report concludes by examining policy questions and issues.

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YOUTH APPRENTICESHIPS

The youth apprenticeship is one of the most often discussed remedies to problems facing the "Forgotten Half."[1] This section reviews key features of youth apprenticeships, which include:

- Authentic work experience
- On-the-job training and mentoring
- Integration of education and work experience
- Certification.

In addition, three groups play central roles in carrying out youth apprenticeships:

- Schools,
- Employers, and
- Labor.

Finally, although perhaps not an absolutely necessary element, outside or "catalytic" organizations may perform an important role in ensuring the success of youth apprenticeships. This section also discusses how youth apprenticeships might resemble and differ from three current Federal programs:

- Tech-Prep
- Cooperative Education
- Job Training Partnership Act (JTPA)

What Are Youth Apprenticeships?

Youth apprenticeships link learning in school with work experience by integrating academic instruction with work-based learning and work experience taking place on the job. Perhaps the key element is the apprentice's work experience where he or she applies what is learned in school and, as a result, deepens the understanding of acquired skills and knowledge. In addition to teaching skills for a specific job and general "employability" skills (such as

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[1]The youth apprenticeship is but one of several programs and approaches advocated to improve the transition from school to work. Another program is the career academy. Career academies are "schools within schools" that focus on one occupational cluster, e.g., health care, banking, or insurance careers. Career academy teachers consult with sponsoring employers in developing curriculum; the academy may contain simulated work settings; and employers often employ students in summer jobs. In operation for two decades, some of the better known academies are located in Philadelphia, New York, Los Angeles, and Oakland. For a discussion of the Philadelphia academies, see Hayward, Becky J., Nancy E. Adelman, and Richard N. Apling. *Exemplary Secondary Vocational Education: An Exploratory Study of Seven Programs.* Discussion Papers for the National Assessment of Vocational Education. Washington, Feb. 1988. For an overview of other approaches to improve school-to-work transition, see U.S. Department of Education. Office of Vocational and Adult Education. *Combining School and Work: Options in High School and Two-Year Colleges.* Washington, Mar. 1991. Also, see Youth Apprenticeships: Can They Improve the School-to-Work Transition? *CQ Researcher*, v. 2, no. 39, Oct. 23, 1992. p. 906-928.

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timeliness, effective communication, and conscientiousness), youth apprenticeships aim to enhance academic learning and fosters positive attitudes toward work--including working as an adult in an adult workplace. Adult mentors guide students' experiences on the job, and students often rotate from job to job at the work site to obtain a broad view of related occupations and skills.[2] These programs can originate in 10th grade or earlier with career exploration to investigate occupations and clarify students' career goals. The actual apprenticeships often start during the last two years of high school and may continue into postsecondary institutions. Program completers might proceed directly into the workforce, to postsecondary education, or even to "adult" apprenticeship programs.

Based on European models, youth apprenticeships differ in important ways from traditional American adult apprenticeships. Historically, apprenticeships in the United States have been essentially private-sector programs serving workers in their mid-to-late 20s who have been out of high school for several years. In addition, American apprenticeships usually focus on traditional skilled occupations such as construction trades.[3] Youth apprenticeships, by comparison, serve high-school age students and incorporate a broader range of occupations in, for example, banking and health care.

Advocates of youth apprenticeships acknowledge that European models must be adapted before they will succeed in this country. German apprenticeships, for example, appear to be too rigid and the training too narrow for the American educational system and labor markets. German students must choose early in their educational careers between apprenticeship training and university education. Moreover, students must make early decisions on a specific occupation. While change to an apprenticeship in a different occupation is possible, it means that the apprentice must start all over again at the beginning of the training, even if the two occupations are closely related.[4]

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[2]For example, Sears sponsors an apprenticeship program for appliance repair. Apprentices first spend time in the parts department (for first-hand experience in maintaining inventory and filling orders) before they begin their repair training.

[3]For further information about U.S. apprenticeships, see U.S. Library of Congress. Congressional Research Service. *Apprenticeship Training in America Under the "Fitzgerald Act" (1937-1991): Policy Issues for the 102d Congress*. Issue Brief No. IB91092, by William G. Whittaker, May 12, 1992 (updated regularly). Washington, 1991; and U.S. Library of Congress. Congressional Research Service. *Apprenticeship Training: Proposed Department of Labor Regulations*. CRS Report for Congress No. 90-606 E, by William G. Whittaker. Washington, 1990. 18 p.

For further discussion of the contrasts between "traditional" American apprenticeships and youth apprenticeships, see National Alliance of Business. *Real Jobs for Real People. An Employer's Guide to Youth Apprenticeships*. Washington, June 1992. p. 9.

[4]For a brief overview of European apprenticeship systems, see Hamilton, Stephen F. Apprenticeships for American Youth? *TransAtlantic Perspective*, no. 25, spring 1992. p. 6-9.

Another reason that the German system could not be easily transplanted to this country is because we lack and could not easily establish "the elaborate set of institutions, laws, and social (continued...)

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Current attempts to design American versions of European youth apprenticeship programs are in the early stages. The U.S. Department of Labor (DOL), the Chief State School Officers, and Jobs for the Future (a nonprofit organization in Massachusetts) are sponsoring demonstration efforts.[5]

Key elements of a youth apprenticeship program are: authentic work experience, on-the-job training and mentoring, integration of education and work experience, and skill certification.

These attempts are small and new--programs we visited enrolled between 20 and 40 students and most programs are in their first or second year of operation.

Because United States apprenticeship programs are in the pilot or demonstration phase of development, no one cannot determine with certainty whether youth apprenticeships will work well in this country; what problems will be confronted in implementing a national program; or whether the youth apprenticeship is just another fad in American education. At the same time, both the literature on youth apprenticeships[6] and information from operating programs suggest several key elements of youth apprenticeships.

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[4](...continued)
norms that evolved over the course of centuries and now sustain the German apprenticeship system." U.S. Department of Education. Office of Vocational and Adult Education. *Combining School and Work: Options in High Schools and Two-Year Colleges*. Washington, Mar. 1991. p. 10.

[5]DOL is sponsoring several school-to-work demonstration projects through: the Pennsylvania Department of Commerce (Pennsylvania Youth Apprenticeship Project); the Boston Private Industry Council (Project ProTech); the Maryland Department of Economic and Employment Development (Project MechTech, Tech-Prep Plus, and Maryland's Tomorrow); Los Angeles Unified School District (Workforce LA Youth Academy); Electronic Industries Foundation (Center of Excellence in Electronics Training); National Alliance of Business (joint effort of Bank of America and San Francisco's Mission High School and Du-Page County/Sears School-to-Work Transition Project).

The Chief State School Officers and DOL are sponsoring State-level youth apprenticeship planning in California, Maine, Minnesota, West Virginia, and Wisconsin.

Jobs for the Future is sponsoring several demonstration projects in Cambridge, Massachusetts, Broome County, New York, Comstrock, Michigan, Tulsa, Oklahoma, Oakland, California, Easley, South Carolina, Pasadena, California, and Portland, Oregon.

Several States--including Arkansas, Oregon, and Wisconsin--have legislation authorizing youth apprenticeships.

[6]See, for example, Lerman, Robert I., and Hillary Pouncy. *Why America Should Develop a Youth Apprenticeship System*. Progress Policy Institute Policy Report, no. 5, Mar. 1990. p. 1-14; and Hamilton, Stephen F. *Apprenticeship for Adulthood: Preparing Youth for the Future*. New York, The Free Press, 1990.

"Real" Work Experience

Most high school students' jobs are low skilled and repetitive, offering little opportunity for learning or advancement. Youth apprenticeships are designed to provide quite a different work experience. Youth apprentices work along side adults in adult work settings like hospitals, banks, and manufacturing plants. While not replacing the adult worker, the apprentice performs authentic adult work. A description of the duties of a biomedical technology apprentice in the Broome County, New York, program provides some notion of the complexity and diversity of the jobs youth apprenticeship programs strive to provide:

> Youth apprentices will be trained to service the biomedical hospital equipment. Youth will observe and assist the technicians as they maintain and repair noncritical, life support and patient contact equipment, perform preventive maintenance, perform electrical safety surveys, and maintain a safe and orderly work area.

This apprentice assists the biomedical technician in repair and maintenance of real machinery. He or she does not do this alone, and certain **critical** repairs are beyond the scope of the apprentice's activities. At the same time, the apprentice obviously performs complex and varied work under the supervision of a training adult.

Student-Mentor Relationship

Not only is the work experience challenging, but youth apprentices do more than work--they receive most of their specific occupational training on the job. This training is done by one or more adult employees of the company hiring the apprentice. The Broome County program has identified several roles employers and their workers must play to implement an apprenticeship program:

- **Designing and managing the work experience**. Design and management includes determining the skills and competencies the apprentice must acquire; mapping out sequential activities to teach these skills; coordinating job rotation to continue skill building and to provide the apprentice with a comprehensive picture of interrelated occupations; and maintaining contact with parents and the school.

- **Coaching the apprentice on how to perform tasks**. Coaching includes demonstrating the skills the apprentice will need to perform assigned tasks; monitoring and critiquing the apprentice's performance; and modeling good performance, for example, by thinking through decisions out loud.

- **Mentoring the apprentice.** The mentor's role includes socializing the apprentice to the company and the adult work world; helping him or her solve problems encountered in the workplace; and advising on career decisions.

One person might fill all these roles for one apprentice--especially in a small business. Other apprentices--perhaps in larger organizations--would have several adults filling these roles. In either case, the quality of the apprentice's work experience will depend on how well the mentor and job coach do their jobs.

Integration of Education and Work

Not only is an apprentice a worker, but he or she is simultaneously a learner. For the apprentice to successfully play both roles, education and work must be integrated. That is, what is learned at school must support and reinforce both what is learned on the job and how well the apprentice performs his or her job. The integration of an apprentice's school and work experience could have the most payoff and be the most difficult aspect of youth apprenticeship programs. The pay off would come when students see the connection between what they learn at school and how well they perform on the job. Seeing this connection, students are motivated to work harder in school; their achievement improves; and they eventually become more productive workers.

Integrating education and work faces several challenges:[7]

- One key to success is **curriculum development**. Standard textbooks and curriculum material usually do not reflect practical applications. Even if some practical examples are presented, materials would still need to be tailored to specific apprentices' work experiences. For example, math modules could be related to measurement problems apprentices face on the job. But an apprentice in a hospital lab might be measuring in milliliters and grams while an apprentice in a machine shop might be measuring in hundredths of millimeters.

- Another key is **staff development**. Many teachers might not be comfortable altering their teaching methods and material. Thus, staff development becomes essential.[8] Even more crucial is staff development for workers who will be training and "mentoring" apprentices. A master machinist or hospital laboratory technician may be first-rate employees, but this does not automatically mean that they

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[7]The challenges facing those trying to integrate education and employment resemble challenges involved in integrating academic and vocational education. See Adelman, Nancy E. *The Case for Integrating Academic and Vocational Education*. Washington, Policy Studies Associates, 1989.

[8]One potentially useful staff development activity is for teachers to visit worksites and talk with employers and employees about skills and knowledge various jobs require. Teachers probably will come away from such visits with a more concrete view of the jobs apprentices will be performing. In addition, they may actually receive specific problems and activities that they can use in their classrooms. Some have suggested that participating employers should hire teachers during the summer so they can obtain indepth understanding of the demands of the workplaces youth apprentices will be entering.

can effectively teach a high school student those skills necessary in performing on the job.

- Early **involvement of teachers, employers, and employees** in planning and training will also be a key to success. Adelman found that most schools with successful links between academic and vocational instruction drew heavily from academic and vocational teachers' input. Analogously, successfully linking education and work will require input from those "on the front lines" both in schools and in the workplace. Developing and imposing curriculum and methods from the outside is less likely to be successful.[9]

- Integrating academic and work experience within youth apprenticeships **will take time to implement fully**. Experience with reforms to integrate academic and vocational education suggest that this could also take as long as a decade. This in turn has implications for duration of pilot and demonstration projects. Typically a demonstration lasts for 2 or 3 years. This almost certainly will be too short a period for a youth apprenticeship program to be successfully planned and implemented.[10]

One approach for integrating academic education and work is the project method of instruction. Two programs we visited use a project format for part of the academic instruction. Each apprentice identifies a problem or issue related to his or her work experience. For example, a student working in a hospital laboratory could investigate problems created by the hospital's solid waste. The student would then bring to bear several academic disciplines to investigate the issue: the science involved in waste management, the local history of political decisions on where to locate land fills, the economic costs of various waste management strategies, the written skills to prepare a report on the issue, and the verbal skills to make a report to staff at the hospital.

Another approach to linking schooling and work experience is through feedback from employers to teachers. In two sites we visited, employers give teachers feedback on skills to be reinforced. Mentors at one plant we visited told academic teachers that apprentices needed help with measurement. (The precision toolmaking and machining at the plant, which manufactures engines for small aircraft, requires meticulous measurement.) Teachers added emphasis on measurement to math and science courses. At one site, the job coach for an

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[9]The National Alliance of Business points out that a key role that employers and employees can play is conducting specific job analyses for the positions that apprentices will fill. A thorough analysis will provide the specific and general skills and knowledge needed for successful job performance. A detailed analysis of these needs, in turn, can inform teachers about what should be emphasized in instruction and perhaps even in what sequence various topics should be taught.

[10]Adelman found that successful efforts to integrating academic and vocational instruction had been underway for 5 to 10 years. Recall that current United States youth apprenticeship demonstrations are mostly in their first or second year; so it is unlikely that we will know how well they have succeeded for at least another 3 years.

apprentice at a hospital asked program staff when the student would be studying anatomy. The biology course at the high school does not cover much on human anatomy; so arrangements were made for the student to take a course for credit in anatomy at the local community college.

Certificate of Accomplishment

If a national system of youth apprenticeships is ultimately to be created, a national certification process will be necessary to make training "portable." For example, a student who successfully completes an apprenticeship in health technology in New York should receive a certificate that will be recognized by an employer in any other State. The tool making trade illustrates the need for a certification process but also the problems. One employer we interviewed noted that the tool and die trade has 25 specialties. "The tool and die trade is so broad that the company across the street may have very different skill needs than I do." He foresees a "report card" of what students have learned as very important to inform future employers what the student knows and what he or she must be taught to assume a machinist's job at a different plant. The National Alliance of Business recommends simple checklists so that apprentices' mentors or advisors can easily indicate to the student, to teachers, and to future employers the skills that have been mastered. These check sheets can be distilled from detailed analyses of skills and knowledge each job requires.

Key Participants in Youth Apprenticeship Programs

> *Key participants in a youth apprenticeship program are schools, employers, and labor.*

Clearly, schools, employers, and labor are each crucial parties for successfully implementing a youth apprenticeship. But it is also important that different groups and individuals within each of these "stakeholders" must be involved and committed for youth apprenticeships to succeed. In **school districts**, the superintendent and the school board must provide leadership and support (both monetary and institutional) for the program. Principals must oversee efforts within their schools to revise curriculum, plan and conduct staff development, select students, and change schedules for the apprenticeship program to succeed. Guidance counselors are important for encouraging students to consider youth apprenticeships, helping them prepare for the program, and overseeing their progress through the apprenticeship. Finally, teachers must support the program. As one school administrator told us, "Teachers have the ultimate veto power. Once they close their doors, they do what they want."[11]

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[11]One of the youth apprenticeship programs we visited has initiated in-school committees to help ensure involvement from multiple levels. Composed of a district administrator, a school administrator, a guidance counselor, three academic teachers (science, math, and English), a vocational education teacher, a parent, and a representative from the project, these committees oversee the program at the school level, resolve school-level problems, and serve as a sounding board for the apprentices.

From the **business perspective**, the chief executive must accept and support the program. In small businesses this may be sufficient. We interviewed several presidents of small businesses who had apparently unilaterally (or after consulting with a few other key people) opted to join the program. In larger companies with many more levels of management, a unilateral decision might not be enough. Staff of one youth apprenticeship program told us that it took them more than 2 years to convince the largest employer in the community to support apprentices. The main reason for this was that managers at several levels--not just the chief executive--had to comprehend the program, understand their responsibilities, and lend their **active** support.[12]

Workers' support is also a key, not only because some workers will serve as coaches and mentors but also because all workers must accept the presence of high school students in their worksite. If workers are convinced that apprentices will get in the way or threaten their jobs, an atmosphere unconducive for learning can develop. If the company is a union shop, obviously union leadership must be closely involved in planning the program. In one site we visited, local unions in some companies were hostile to the concept of youth apprenticeships, and program organizers could not even make appointments to talk with them. In another plant where the local president was closely consulted on implementation, the program appeared to be working smoothly.

"Catalytic" Organizations

An outside, "catalytic" agency may be decisive in planning and implementing a successful youth apprenticeship program.

In addition to schools, business, and labor, it may be necessary to have a fourth organization involved--one that serves as a **catalyst** to help plan and implement the youth apprenticeship program. In the three sites we visited, an outside organization or group appeared to be essential in starting and maintaining the program. In Broome County, it was Cornell University and Cornell's cooperative extension service. The Pennsylvania sites have regional "technology extension programs" that play this role.

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[12]Employers attitudes toward and understanding of apprenticeship training will clearly influence the quality of the work experience. In one program we visited, one employer said he would not allow his apprentice to perform production work. Instead the apprentice would observe workers, put away tools, and even clean up and sweep the floor. "He will get exposure to the kind of work we do, be a helper, learn the jargon. I don't expect to get much from a 16 year old." Another employer participating in the same program planned to put his apprentice to work on the production line but under close supervision. He and other employers in the vicinity planned to trade apprentices during the year. Since each plant is small, rotating from site to site would expose each apprentice to a broader range of machinery and experiences than he or she would have in one plant. This employer, who had experience training apprentices, expected them to break tools but sees his involvement as an investment in the community.

A "catalytic" agency may have the expertise, resources, and detachment to accomplish important tasks that schools, business, and labor unions are not equipped or motivated to accomplish. In general, school people and business people speak different languages and see the world from very different perspectives. An outside party can help "translate" communication between the world of business and the world of education.

We saw several examples of how this "outside" agency had the time and resources to accomplish what needed to be done. The Cornell cooperative extension office was instrumental in obtaining New York State Regent's credit for apprenticeship participants. Because the State did not initially grant youth apprentices in the Broome County program Regents' credit for program participation, a student in the program might not receive the more prestigious Regents' diploma. Project staff successfully negotiated with the State so that students now receive Regents' credit for participating in the apprenticeship in their junior and senior years. The office also negotiated between and among businesses, the State's DOL, and the U.S. DOL on ambiguities in child labor laws.

In Pittsburgh, the Technology Development and Education Corporation played a number of important roles. The local project manager of the Pennsylvania Youth Apprenticeship Program recruited school districts and employers for the project. She was responsible for publicizing the program so that parents and students knew about it. She also recruited students for the program by making initial presentations in participating schools, helping students with resumes and interviewing skills, and taking students to interviews. (Employers made final selections of the apprentices they hired.) Finally, she worked with employers to help them devise training plans and helped train mentors.

How Do Youth Apprenticeships Resemble and Differ from Current Programs?

The Federal Government currently operates several programs that aim to improve the education, training, and ultimate workforce experiences of populations that youth apprenticeships might serve. The design and implementation of a national youth apprenticeship program in this country must consider how youth apprenticeships might augment as well as duplicate and overlap with these programs. This report examine three programs: Tech-Prep, Cooperative Education, and JTPA.

A successful youth apprenticeship system in this country must consider how youth apprenticeships augment as well as duplicate and overlap current programs with similar goals, serving similar populations.

Tech-Prep

In 1990 the Congress created the Tech-Prep program as part of the reauthorization of the Carl D. Perkins Vocational and Applied Technology Education Act. Congress appropriated $104 million for Tech-Prep for FY 1993. Tech-Prep programs have the following characteristics:

- The program coordinates a student's last 2 years of high school with 2 years at a community college or with other postsecondary educational experience and integrates vocational and academic education.
- The high school phase concentrates on academic preparation and introductory occupational courses to ensure that students are prepared to pursue more advanced training at the postsecondary level.
- In the postsecondary education phase, students pursue more advanced academic work and occupationally specific courses.
- Students earn a 2-year degree in an occupationally specific field.

Like Tech-Prep, youth apprenticeships may have a 2-plus-2 configuration. That is, programs enroll students in the last 2 years of high school and 2 years of postsecondary education. Both Tech-Prep and youth apprenticeships aim to integrate academic and occupational courses. One major difference is that work experience is a centerpiece of apprenticeship programs while Tech-Prep programs may not include work experience at all. In addition, youth apprenticeships involve business and unions as key components of the program; whereas, the main planners of Tech-Prep programs are consortia of school districts and postsecondary institutions.

Cooperative Education

Cooperative education (coop) is a long-standing program in both high school and postsecondary education. For FY 1992, Congress specifically appropriated $13.8 million for cooperative education under title VIII of the Higher Education Act. Like youth apprenticeship programs, coop education provides paid work experience linked to the occupational programs students are pursuing. As with an apprenticeship, the student works on the job part time (perhaps in the afternoons) and attends classes the remainder of the week.

The General Accounting Office (GAO) has identified several features of cooperative education programs, which may also typify outstanding youth apprenticeship programs:

- Agreement among employers, students, and schools on specific training plans that detail general and specific skills coop students are to acquire;

- Student screening to assure that they can meet employers' requirements;
- Employers selected who can provide training in fields with potential for advancement in a career;
- Fidelity to the training plan; and
- School staff's close supervision of students at worksites.[13]

Coop programs and youth apprenticeships also differ in important respects. Coop programs are usually the culminating coursework that a vocational education student takes after 2 or 3 years of occupationally specific training. On the other hand, the first exposure to occupationally specific training students in youth apprenticeships receive usually occurs on the job, and most of the occupational training takes place on the job. In addition, youth apprenticeship differ in that work experience is more closely integrated with academic instruction. Finally, high school coop programs terminate at high school graduation rather than continuing into postsecondary study as do some youth apprenticeship programs.

Job Training Partnership Act[14]

The JTPA is the Nation's primary employment and training program for disadvantaged adults and youths. In the program year ending June 30, 1991, JTPA provided training and related services to approximately 103,900 high school students. Of these, an estimated 6.5 percent participated in school-to-work activities.[15] In 1992, Congress amended JTPA to create separate programs for adults and youth[16] to broaden opportunities for collaboration

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[13]U.S. General Accounting Office. *Transition From School to Work: Linking Education and Worksite Training*. Report to Congressional Requesters, GAO/HRD-91-105, Aug. 1991. Washington, 1991. p. 4.

[14]Ann Lordeman (CRS-Education and Public Welfare Division) wrote this section.

[15]U.S. Department of Labor. *Job Training Quarterly Survey. JTPA Title II-A and II Enrollment and Termination During Program Year 1990 (July 1990-June 1991)*. Jan. 1992. Table 9. Washington, 1992; and *JTPA Program Highlights. Data From the Job Training Quarterly Survey*, v. 1, no. 1. Washington, July 1992. p. 8-9.

[16]As originally enacted in 1982, JTPA provided services to economically disadvantaged adults and youth through two programs: the title II-A adult and youth program and the title II-B summer youth employment and training program. Under JTPA, as amended, title II-C provides year-round services exclusively to youth; the title II-A program provides year-round services exclusively to adults. The 1992 amendments (P.L. 102-367) are effective July 1, 1993. U.S. Congress.

between JTPA, local school systems and other community resources.[17] The JTPA is primarily administered by localities through subcontracts with a variety of providers, including schools and community colleges. Each locality must have a Private Industry Council (PIC) that provides policy guidance and oversight for the local JTPA job training activities. A majority of PIC members must be representatives of the private sector.[18]

The JTPA, as amended, includes three programs, components of which have similarities with youth apprenticeship programs. **The Youth Training Program**, funded at $696.7 million for FY 1993, provides training and related services to economically disadvantaged youths who meet income eligibility criteria.[19] Before local programs can provide services, they must assess participants' skills, needs, and interests and develop individual service plans to meet their needs and interests.[20] Depending on the results of the assessments, the direct training services that could be provided and that might resemble youth apprenticeships include: programs that combine workplace training with related instruction, preapprenticeship programs, mentoring, school-to-work transition services, and school to apprenticeship transition services. In addition to direct training services, programs also provide training-related and supportive services--such as transportation and bonuses based on attendance and performance--which may enable some students to participate in youth apprenticeships.

The State Education Coordination and Grants Program requires each State to set aside 8 percent of its Youth Training Program allocation for allotment to any State education agency for projects that provide school-to-work transition services and to facilitate coordination of education and training services. These school-to-work transition services could resemble youth apprenticeships. Specifically, the Governor's coordination and special services plan, which is submitted to the Secretary of Labor for approval, must include with respect to school-to-work transition services: a description of the activities and services that will result in increasing the number of youth staying in or returning to school and graduating from high school; the work-based curriculum that will link classroom learning to work site experience and address the practical and theoretical aspects of work; the opportunities that will be made

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[17]U.S. Congress. Senate. Committee on Labor and Human Resources. *Job Training and Basic Skills Act of 1992*. Report to accompany S. 2055. Senate Report No. 102-264, S. 2055, 102d Cong., 2d Sess. Washington, GPO, 1992. p. 47.

[18]Other members include representatives of organized labor, community-based organizations, educational agencies, vocational rehabilitation agencies, public assistance agencies, economic development agencies and the public employment service.

[19]Funds are allocated to States, who set aside 18 percent for activities at the State level, and allocate 82 percent to local areas. Up to 20 percent of the funds allocated to localities can be spent on administrative costs and at least 50 percent must be spent for direct training services; the remainder can be spent on training related and supportive services.

[20]The assessment can be provided by another program such as a regular high school academic program.

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available to participants to obtain career-path employment and postsecondary education; the integration to be achieved in the delivery of services between State and local educational agencies and alternative service providers, such as community-based and nonprofit organization; and the linkages that will be established to avoid duplication and enhance the delivery of services among other related federally funded programs.[21]

The Summer Youth Employment and Training Program, funded at $670.7 million for FY 1993, provides a variety of services including work experience and basic and remedial education to economically disadvantaged youth ages 14-21. This program could be used to complement or supplement a youth apprenticeship program, although only youth meeting income eligibility criteria can receive services.

One key feature of JTPA that is also important for successful youth apprenticeships is the private sector's major role through the PIC in planning and monitoring program activities. One important difference between JTPA and current youth apprenticeships is that JTPA has income eligibility criteria and consequently serves primarily the economically disadvantaged, which would limit the use of JTPA in developing a youth apprenticeship program for all students, regardless of family income. Another difference is that JTPA has historically provided short-term training of 4 or 5 months; whereas, youth apprenticeships are longer term programs, lasting 2 or more years.

CONCERNS ABOUT THE "FORGOTTEN HALF" AND HOW YOUTH APPRENTICESHIPS MIGHT ADDRESS THESE CONCERNS

One of the central reasons the national youth apprenticeship system is being considered is the view that youth apprenticeships can address problems facing students who do not pursue education after high school (the so-called "Forgotten Half"). This section discusses:

Two fundamental problems the "Forgotten Half" face are declining real wages and difficulties making the transition from school to work.

- Who makes up the "Forgotten Half";
- The problems this group faces; and
- How youth apprenticeships might address these problems.

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[21]The State education agency submits this description which is developed jointly by the State education agency and the Governor for inclusion in the Governor's coordination and special services plan.

Who Are the 'Forgotten Half?'

The 'Forgotten Half' is so called because about one-half of high school students do not go on to postsecondary education and because, as the Commission on Work, Family, and Citizenship has argued, there is a "sharp disparity" between American support for college-bound youth and support for the 'Forgotten Half."

- Each student enrolled in an institution of higher education can typically expect to receive a combined public and private subsidy of about $5,000 per academic year--for each of 4 years or more. . . .

- Youth not going on to college are starved for support. Only about 5 percent of those ***eligible*** for federally supported job training receive it, then usually for only about 4 months at a level of $1,800 to $2,300. . . ."[22]

An estimate of about one-half of the high school population may actually understate the magnitude of the problem for some groups. It is important to realize that lower percentages of minority students receive any postsecondary education. Census data for 1991 show that, while 55 percent of whites ages 25 to 29 had 1 or more years of postsecondary education, only 43 percent of blacks and only 41 percent of Hispanics achieved that much schooling.[23]

In addition, many students who begin postsecondary education complete only a small proportion of their programs. For example, Norton Grubb has found that many community college students dropout, and about one quarter of these dropouts attend school for less than 5 months. He concludes that "a large proportion of noncompleters spend what can be considered trivial amounts of time in community colleges. . . . They may have discovered quickly that they are unlikely to complete a program, or that completion will not bring them much advantage. . . ."[24] Thus, even among those who continue education after high school, many receive only a "trivial" amount of further education.

Declining Real Wages

Perhaps the most serious concern about students who do not pursue postsecondary education is their declining real wages. Recent data show that workers in the early stages of their workforce participation (with 1 to 5 years experience) have undergone real decreases in their wages (adjusted for the

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[22]The William T. Grant Commission on Work, Family and Citizenship. *The Forgotten Half: Pathways to Success for America's Youth and Young Families*. Final Report. Washington, 1988. p. 3-4 (emphasis added).

[23]U.S. Department of Education. National Center for Education Statistics. *The Condition of Education, 1992*. NCES 92-096, by Nabeel Alsalam, et al., 1992. Washington, 1992. p. 62.

[24]Grubb, W. Norton. Dropouts, Spells of Time, and Credits in Postsecondary Education: Evidence from Longitudinal Surveys. *Economics of Education Review*, v. 8, 1989. p. 56.

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effects of inflation) since the 1970s. Those with a high school education or less appear to have fared worst. Figure 1 shows that males with only a high school diploma and 5 years of experience or less earned $9.75 in 1973 compared with $6.90 in 1991 (nearly a 30-percent decrease). Male college graduates also experienced declining wages; however the gap between high graduates' and college graduates' wages has grown. In 1973, male college graduates with 1-5 years of experience earned on average $3.64 an hour more than males high school graduates. By 1991, they earned $5.03 more.

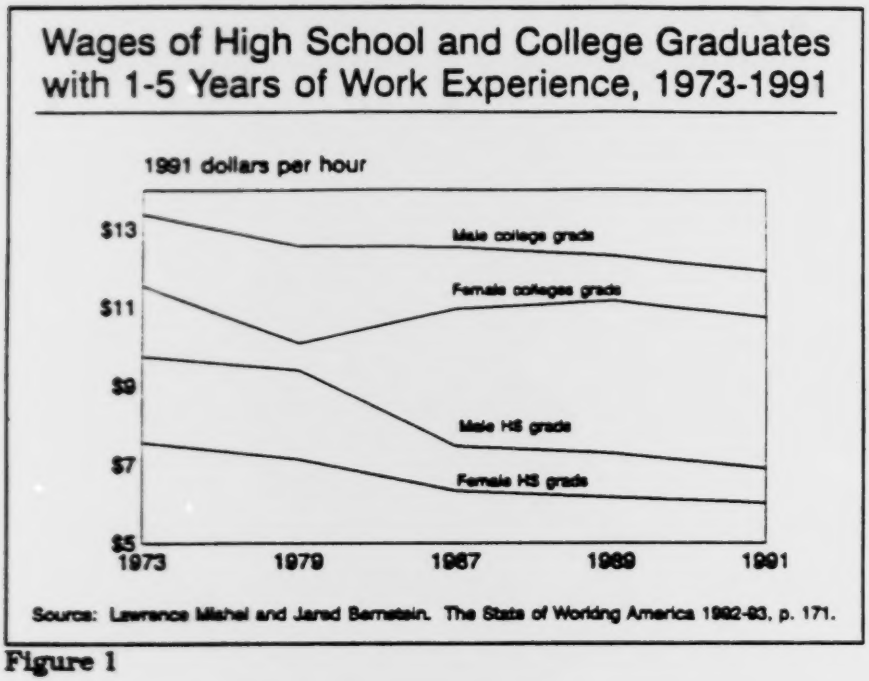

Figure 1

Patterns for women are similar: Women with only a high school education and 1 to 5 years of experience encountered a 20 percent decrease in wages between 1973 and 1991. The gap between female high school graduates and female college graduates also grew during this period: from a $3.98 per hour "premium" for a college degree to a $4.73 per hour "premium."

The Perilous Transition From School to Work

Another concern is the difficulty that "non-college" bound youth face in moving from school to work. The real problem is not the transition to work--most high school students

> *The real problem in school-to-work transition is moving from jobs in the "youth labor market" to careers in the "adult labor market."*

work.[25] It is the transition from jobs in the "youth labor market" to careers in the "adult labor market." The concept of a youth or secondary labor market is that high school students and those just out of high school are limited to low-skill, low-paying, low benefit, low security jobs.[26] Only as young workers approach their middle 20s do they move into the "adult" labor market.[27]

Hamilton and Powers make a useful distinction between the transition from school to work and the transition to career:

> Youth make the transition from school to work in several steps, beginning with part-time and vacation jobs while they are still full-time students. For those who do not enroll in college, the next step is full-time or near full-time employment after the termination of high school, and then later, in their early to mid-20s, by career-entry jobs with adult earnings, benefits, security, and possibilities for upward mobility. Childbearing often interrupts and prolongs this process for women.[28]

Hamilton and Powers note that the transition to careers is much more difficult for those who only complete high school. One reason for this difficulty is haphazard career planning and career choice that depend on the idiosyncracies of the labor market at the time of job search. Hamilton and Powers' interviews with a sample of working-class high school girls just before graduation revealed how little planning many students do. More than 60 percent had done little or no career planning although they were about to leave school and presumably enter the workforce.[29]

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[25]Hamilton argues that three-quarters of all high school students are "in the labor market"–in the technical sense: one-half report they are working at any given time and another one-fourth say they are looking for work. He also argues that a higher proportion work for some period during their high school that statistics reveal because teenagers move fluidly into and out of the labor market. If summer jobs are included, it is reasonable to conclude that "only a small proportion of high school students have never been employed before graduation." Hamilton, Stephen F. *Apprenticeship for Adulthood: Preparing Youth for the Future*. New York, The Free Press, 1990. p. 20.

[26]For a discussion of youth labor markets, see Osterman, Paul. *Getting Started: The Youth Labor Market*. Cambridge, MIT Press, 1980.

[27]Hamilton and Powers note that 44 percent of workers 16 to 19 are employed in retail trades while 14 percent of those older than 25 are employed in this kind of job. Hamilton, Stephen F., and Jane Levine Powers. Failed Expectations: Working-Class Girls' Transition from School to Work. *Youth and Society*, v. 22, no. 2, Dec. 1990. (Hereafter cited as Hamilton and Powers, *Youth and Society*)

[28]Hamilton and Powers, *Youth and Society*, p. 243-244.

[29]Hamilton and Powers argue that working-class girl face even more difficulties than boys. "Female's career choices continue to be constrained by perceptions of what is properly women's work and by the anticipated subordination of paid employment to motherhood." As a result, the career jobs they move into often resemble youth jobs regarding earnings and promotion possibilities. Hamilton and Powers, *Youth and Society*, p. 246.

Possible Causes of Declining Real Wages and School-to-Work Difficulties

Observers debate about why real wages are falling and why the transition from school to work is more difficult for noncollege graduates. Many factors are likely to be part of the explanation, including the Nation's slowed rate of productivity growth, the continuing shift from manufacturing to service industries, the diminished role of unions, and the need for firms to hold down labor costs to compete with foreign companies. Here we examine several possibly interrelated problems:

- Skill deficiencies among high school graduates;
- Lack of motivation in high school (which could obviously be related to low skill levels);
- Increases in skill requirements (at least in some occupations), which would magnify the problem of high school skill deficiencies; and
- The irony that high school students possibly do not pursue some high wage occupations even while there are shortages of workers in those occupations.

Skill Deficiencies

Evidence of knowledge and skill shortcomings in young workers comes from a variety of sources including employer surveys, test scores, and empirical studies. While the reliability of some sources has been questioned,[30] taken as a whole the evidence indicates that knowledge and skill shortcomings in young workers are likely to be widespread. Three shortcomings are often mentioned:

- **Weak Academic Skills**: Young workers frequently lack adequate basic skills in reading, computation, and writing. Employers claim they must screen many applicants to find enough who would be suitable to hire.[31] Weak academic skills also make it difficult to train employees for new assignments. Some of these weaknesses were revealed in a 1986 National Assessment of Educational Progress (NAEP) survey of high school graduates ages 21-25: while nearly

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[30]It has been noted, for example, that employer surveys often elicit responses to the particular traits included in survey instruments rather than indicate what might be employers' real needs. Many surveys only sample employers in particular industries or localities, or perhaps just in businesses of certain size. Natriello, Gary. Do We Know What Employers Want in Entry-Level Workers? *NCEE Brief*. National Center on Education and Employment, Columbia University, Apr. 1989.

[31]For example, one employer we interviewed said he uses a self-developed tests to assess job applicants' skills. Although the test was designed to measure eighth grade math, "70 percent couldn't pass it," he said. He believes that students in high school do not see the real-world applications of the subjects they are being taught.

everyone could write about a job they would like, only about 40 percent could locate information in a lengthy news article; only about 20 percent could state in writing the argument made in a lengthy newspaper column.[32]

- **Inability to Apply Skills**: Even if workers have suitable academic skills, they often cannot apply them on the job. It is not sufficient to read and comprehend a safety manual, for example: it is essential to use the manual's lessons to prevent accidents. Inability to apply knowledge makes it difficult to give employees work responsibilities that are ambiguous or might change. While little is known about how workers actually apply abstract knowledge to practical problems, the NAEP survey just mentioned reveals some weaknesses: only about half of young high school graduates could enter and calculate a checkbook balance or could follow directions to travel from one location to another using a map; only about 15 percent could plan travel using bus or flight schedules, and only 5 percent could estimate costs using grocery unit-price labels.[33]

- **Poor Work Attitudes**: Perhaps employers' most frequent complaint about young workers is their poor attitudes toward work. A Louis Harris survey "found that dedication to work and discipline in work habits were the biggest deficits that employers saw in high school graduates who were applying for jobs."[34] A Committee for Economic Development survey of Fortune 500 companies and 6,000 smaller firms found that young workers often did not strive to work well, communicate, set priorities, work with others, or learn how to learn.[35] Poor work attitudes may be caused in part by young adults' lack of commitment to employers due to uncertainty about their careers. They may also reflect limited work experience with older adults. Whatever the explanation, poor work attitudes also make employers reluctant to invest in training young workers.

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[32]Barton, Paul E., and Irwin S. Kirsch. *Workplace Competencies: The Need to Improve Literacy and Employment Readiness*. U.S. Department of Education, 1990. p. 8. NAEP is a nationally representative survey. (Hereafter cited as Barton and Kirsch, *Workplace Competencies*)

[33]Barton and Kirsch. *Workplace Competencies*. p. 9-10.

[34]Cited by Peter Cappelli in *Is the "Skill Gap" Really about Attitudes?* National Center on the Educational Quality of the Workforce, University of Pennsylvania, 1991. p. 5.

[35]Barton and Kirsch. *Workplace Competencies*, p. 17-18.

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Lack of Motivation in High School

Students' lack of effort in school may, in part, account for current skill levels. Nancy Adelman paints a vivid picture of high school students:

> They are the average students who hang on through four years of high school, apparently adding little to their academic achievement levels as a result. Whether or not their personal aspirations include further education or a job right after high school, they are kids who are going through the motions, spinning their wheels, with one (half-closed) eye on enduring until they can "get out" and a second, much more alert eye on the enticing adult world that they will shortly enter. . . . A large part of their laziness, intransigence, or anti-intellectualism seems to stem from not seeing the point of abstract academic learning. . . . Most . . . could do the work if they were motivated. For them, "Because you'll need it later" is simply not an acceptable answer to the age-old question "Why do we have to learn this?"[36]

Much of the evidence that high school students only do enough to "get by" comes from impressions and anecdotal data. For example, reporters from the *Washington Post* found in interviews and polls of students and teachers at a prestigious Montgomery County, Maryland, public high school that nearly 50 percent of students said they were "just sliding by" in school. The reporters' data indicated possible reasons: Two-thirds said that schoolwork is sometimes, seldom, or never meaningful and important. Nearly 50 percent believed that some, very little, or none of what they were being taught would be useful in later life.[37]

Bishop expands on this explanation: "The U.S. labor market under-rewards learning achievements in high school and that the failure to signal learning achievements to employers is at the root of the American learning deficit."[38] Although Bishop cites evidence that workers with higher skill levels are more productive, employers appear to make hiring decisions less on test scores, high school transcripts, or teacher recommendations than on years of schools, diploma obtained, and area of specialization. Apparently part of the reason for not using objective measures of skills is their unavailability to employers.

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[36]Adelman, Nancy E. *The Case for Integrating Academic and Vocational Education*. Washington, Policy Studies Associates, 1989, p. I-8, I-9].

[37]Leff, Lisa. Even at B-CC [Bethesda-Chevy Chase High School], the Temptation Is Just to Slide By. *Washington Post*, Apr. 5, 1992. p. A22.

[38]Bishop, John. Incentives for Learning: Why American High School Students Compare so Poorly to Their Counterparts Overseas. In U.S. Commission on Workforce Quality and Labor Market Efficiency. *Investing in People*. Background Papers, v. 1, Sept. 1989. Washington, 1989. p. 5-6.

Increasing Job Skill Requirements

Analysts disagree on the extent to which job skill requirements are increasing. Some contend that the requirements of jobs are increasing.[39] To the extent this is true, it would exacerbate the impact of declining student skills and widen the gap between the skills students bring to the workplace and the skills jobs require. Peter Cappelli of the University of Pennsylvania--using measures of job skill requirements in 1978 and in 1986--finds that skills required for most manufacturing jobs (such as electricians and tool-and-die makers) have increased.[40] Increased skill requirements may result, in part, from reorganized manufacturing processes that give workers broader responsibilities, such as ensuring product quality, which require more advanced skills in thinking, statistical control, reasoning, analyzing, and problem-solving.

Others question the extent to which companies are moving to so-called high performance workplaces and suggest that the failure to modernize the organization of work supports the demand for low-skilled workers. A recent report argues that "the U.S. workforce lags behind in skills because U.S. companies continue to organize work in ways that depend upon low-skill jobs. Any solution to the manufacturing skills gap must treat the demand side as well as the supply side."[41] The report concludes that "the decision to underinvest in training can appear rational from the standpoint of the individual company. . . . A company can remain extremely profitable by following the low-wage, low-skill path. But such a strategy is disastrous for the economy as a whole."[42]

An often-cited cause of increased skills requirements is the impact of technology on the workplace; however, the effects of technology on skill requirements is complex. For example, advances in technology may reduce skill requirements for some jobs if new machines perform more complex tasks.

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[39]One president of a small manufacturing plant told us that the workplace is changing. "The 'waist-down' skills are not as important. Even in small businesses, we are going to CNC (computer-numerical controlled) equipment. These need intelligent workers to run them."

In Pittsburgh, one school official pointed out that "in the early 60s kids could drop out of high school, go to work for U.S. Steel, and be earning more than their high school teachers in 2 months. Those jobs are no longer available, but many kids still believe they can be steel workers."

[40]Cappelli, Peter. *Are Skill Requirements Rising? Evidence from Production and Clerical Jobs*. National Center on the Educational Quality of the Workforce, University of Pennsylvania, 1991.

[41]Jobs for the Future. *New Training Strategies for a High Performance Metalworking Industry*. Report of a Conference. Cambridge, 1991. p. 5.

[42]Ibid., p. 11.

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Consider how supermarket scanners simplify work for both check-out clerks and managers who monitor sales and inventory.[43]

Perhaps the most that one can concluded about changing skill requirements is that it varies from industry to industry and even from company and to company. Levine concludes "that the extent of the skill transformation is uncertain and mixed: studies have found evidence of varying degrees of upskilling and deskilling; and, they have found evidence of upskilling for some blue-collar workers (e.g., those already with high skills levels) and of deskilling for others (e.g., lesser skilled production workers)."[44]

Avoiding High Skilled Jobs

Another concern is that high school students are no longer choosing high skilled and relatively high paying blue-collar jobs, even though employers have trouble filling vacancies. In one manufacturing plant, the director of human resources reported that his workforce of skilled machinists averages 50 years of age with 18 to 45 years of experience. He is having real difficulty finding young workers with the training to qualify for skilled jobs in his plant. In 10 years, when many in his current workforce retire, he is concerned that he will not have qualified workers to replace them.

Evidence for and explanations of this trend are anecdotal. One explanation we heard from many who we interviewed is parents' desire for their kids to go to college. They see college education as the means for their children to do better than they did. High school counselors apparently share this view and often direct even marginally prepared students to 4-year colleges.

Another problem is students' lack of understanding and knowledge about jobs and the labor market. Several people pointed to TV images driving students to certain occupations (which may look glamorous but offer few opportunities). For example, many students apparently are interested in law enforcement and emergency rescue, perhaps influenced by "real life" television shows. Lamenting this trend, one teacher told us, "We don't need *L.A. Law*, we need *L.A. Machine Shop*."

An additional disincentive for pursuing occupational training is that students in some areas of the country must leave their "home" high school to take occupationally specific courses at an area vocational technical school (AVTS). Many students do not want to do this because it requires traveling to a different site and interferes with extra-curricular activities and jobs. In

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[43]For a discussion of whether technology tends to increase or decrease skill requirements for jobs, see Rumberger, Russell W., and Henry M. Levin. Schooling for the Modern Workplace. In U.S. Commission on Workforce Quality and Labor Market Efficiency. *Investing in People*. Background papers, v. 1. p. 98-105.

[44]U.S. Library of Congress. Congressional Research Service. *The Changing Skill Requirements of Manufacturing Jobs*. CRS Report for Congress, No. 92-842 E, by Linda Levine. Washington, 1992. p. 1.

addition, students attending AVTS's sometimes can be branded as not the brightest in the school, which in turn discourages students from pursuing courses at those schools.[46]

Addressing Problems Facing the "Forgotten Half"

Successful youth apprenticeship problems may raise skill levels and ease the transition to work. It is less certain these programs alone will raise wages for youth completing apprentice programs.

Because American youth apprenticeship programs are in very early stages of development, it is impossible to conclude with certainty how successful they will be. At the same time, proponents of youth apprenticeships have discussed how fully implemented programs might address problems facing the "Forgotten Half," such as declining skill levels, lack of motivation in school, poor work attitudes, and inadequate knowledge about career options.

Principal features of a youth apprenticeship include on-the-job training and "real" work at the job site interconnected with academic, and possibly technical, education provided at the school. Ideally, the job and school experiences should be mutually reinforcing: On the job, the apprentice realizes the importance of academic knowledge and technical skills to performing the current job and advancing to better jobs. In turn, realizing that what is learned in school might have practical applications on the job motivates the apprentice to work harder in school. As a result, the apprentice's school achievement improves. Improved knowledge and skills result in improved performance on the job. Obviously, this is an idealized model of an apprenticeship program; but it illustrates the reasoning proponents use to argue that apprenticeship programs can re-engage many students in school work and, in turn, improve their achievement. Moreover, not only are academic skills improved, but the integration of schooling and work experience can improve students' ability to apply abstract knowledge in practice settings.

Another principal feature of youth apprenticeships is the coaching and mentoring the apprentice receives from one or more adult workers. The mentor not only trains the apprentice but socializes the apprentice to the world of adult work. One barrier to a smooth transition from school to career is that many high school students have little exposure to adults and adult workplaces. In school and in social settings they are mostly influenced by their peers. Even on the job (if it is typical of most "youth labor market" jobs), there is little exposure to adults and adult careers. When high school graduates move into an "adult"

[46]An employer we interviewed sees vocational education as a "dumping ground." "I haven't hired anyone from a vocational school in 10 years because bright kids are no longer coming from there." Instead he hires "college dropouts" with no machine shop experience and trains them on site. He would like to start with younger students and sees youth apprenticeships as another possible training ground for machinists.

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job, they may falter or fail when they do not realize that behavior they displayed in high school is unacceptable and can have permanent negative consequences, such as reprimand, demotion, and dismissal. An effective apprenticeship program can help the apprentice learn those lessons and behaviors with fewer adverse consequences from a respected adult who is not a parent or a teacher.

Apprenticeships can also expose students to career opportunities they never considered or rejected. On-the-job experience can illustrate that a career that does not require baccalaureate degree can be rewarding and well paying. In addition, the apprenticeship experience can give students a clearer view of the path into the career they are interested in. Being on the job and working with adults who have succeeded in the career, the apprentice can get first-hand information on how best to enter and advance in that career. If no further formal education is necessary, the student can proceed directly into the workforce. If adults he or she works with entered their current jobs after receiving related training in the military, the student can weigh volunteering for the armed forces. If most successful workers have formal education beyond high school, the student will have additional motivation to pursue postsecondary education.

Arguably a well conceived youth apprenticeship program could improve academic achievement and job skills for successful completers. An effective program can also socialize young workers to the adult world of work, which should ease the transition from school to work. In addition, youth apprenticeships conceivably will open up job possibilities that many high school students do not currently consider and prepare them to enter these jobs.

Granting all this, however, does not necessarily mean that youth apprenticeships will guarantee high paying jobs. Even if youth apprentices complete their program with high academic achievement and occupationally specific skills, employers must have a demand for such workers and be willing to pay them wages commensurate with their skills. Analysts disagree on whether high skills translate into high paying jobs.[46] Some, like Robert Reich, argue that a high skilled workforce will attract high paying jobs.[47] Others, like Lawrence Mishel, worry that many employers may have already made decisions in favor of low skills and low wages and are willing to pay these low wages to American workers or to workers in Mexico, Southeast Asia, or even countries of the former Soviet Union.[48]

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[46]A related issue is the degree to which job skill requirements are increasing. See page 21 for a discussion of various views on this issue.

[47]See Reich, Robert B. *The Work of Nations*. New York, Alfred A. Knopf, 1991.

[48]For a discussion of the shift to low-paying industries, see Mishel, Lawrence and Jared Bernstein. *The State of Working America, 1992-93*. Washington, Economic Policy Institute, 1992. p. 173-180.

POSSIBLE FEDERAL ROLES

> *Three fundamental questions regarding the Federal role are:*
>
> *Should the Federal Government have a role in creating a youth apprenticeship system?*
>
> *If Federal Government has a role, should a national system be created by amending current programs or creating a separate youth apprenticeship program?*
>
> *Should the Federal Government proceed incrementally with further demonstrations and research or authorize a full-scale program immediately?*

One key question with respect to a possible Federal role in creating a youth apprenticeship program is: **Should the Federal Government have any role?** Youth apprenticeship programs could develop and survive at the State and local levels without Federal encouragement or involvement. After all, State and local programs have arisen with little or no Federal support. Business concerns about filling technical positions could spur the development of apprenticeships. Some business leaders already anticipate shortages in skilled occupations such as health technicians, machinists, tool and die makers, and auto body designers. They worry that traditional sources such as community colleges and the military will not produce sufficient satisfactory candidates for these jobs. Youth apprenticeships in technical areas may survive, even expand, as long as business sees a clear need for graduates of these programs.[49]

If the Federal Government has some role to play in creating a national youth apprenticeship system, two overarching questions for Federal policy are:[50]

- Should a national youth apprenticeship program be integrated into existing programs, or a new, separate program authorized?
- Should the Federal effort continue and expand demonstration programs, or should a full-scale effort be authorized immediately?

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[49]A national move toward high-skill, high wage work places could greatly increase the demand for apprenticeship programs; however, it is not clear how quickly U.S. business is currently moving in this direction.

[50]Several bills were introduced during the 102d Congress with youth apprenticeship components. None of these proposals became law. For a discussion of these proposals see U.S. Library of Congress. Congressional Research Service. *Analysis of Various "Workforce Readiness" Bills Under Consideration by the 102d Congress*. CRS General Distribution Memorandum by Richard N. Apling, July 10, 1992.Washington, 1992.

Modifying Current Programs

As discussed earlier, several programs have similarities with youth apprenticeships. A possible Federal strategy for implementing a youth apprenticeship program would be to amend one or more of these programs to include a youth apprenticeship component. Three potential programs are Tech-Prep, Chapter 1, and JTPA.[51]

Tech-Prep

As previously noted, the Tech-Prep program under the Perkins Act aims to improve high school technical instruction and link high school and postsecondary learning. Current law also encourages some links between education and work. For example, Tech-Prep consortia may combine high school components with either adult apprenticeship programs or postsecondary institutions, such as community colleges. (The latter is the more likely program configuration.) In addition, "special consideration" is to be given to Tech-Prep programs that are developed in consultation with business and labor and provide "effective employment placement activities" after graduation.

Tech-Prep could be modified to strengthen links to employers and the workplace. The legislation could be modified to **require** that program planning be done in conjunction with local business and union leaders. The legislation could mandate that Tech-Prep programs incorporate work experiences through youth apprenticeships. The Maryland Tech-Prep Plus program is an example of combining Tech-Prep and youth apprenticeship. Tech-Prep Plus adds full-time summer work experience related to each student's specific training, and strengthens school-work connections by teacher visits to worksites and employers visits to schools.[52]

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[51]Cooperative Education is another program that could be modified to accommodate youth apprenticeships; however, the relatively small size and limited Federal involvement suggest that cooperative education might not be the best vehicle for mounting a national youth apprenticeship program. Current student participation in coop programs is relatively small. GAO reports that 4 percent of all high school students and 3 percent of community college students participated in coop programs in school year 1989-1990. GAO *Transition From School to Work*, p. 16 and 19.

Federal funding for cooperative education is limited. Perkins Act basic State grant funds presumably can be used for cooperative education at either the secondary or postsecondary level, although the law does not specifically authorize this use of funds, nor do we know how much of Perkins funding goes for cooperative education. Funding under title VIII of the Higher Education Act of 1965, as amended, for cooperative education is less than $14 million for FY 1993.

[52]See U.S. Department of Labor. *Lessons Learned From School-to-Work Demonstration Projects*. [no date] p. 3-4.

Chapter 1

Another program that could be modified is chapter 1 of title I of the Elementary and Secondary Education Act.[53] Funded at $6.7 billion for FY 1993, the chapter 1 program aims to improve both "basic and more advanced skills" of "educationally deprived" children. Throughout the history of the program, most funds have been concentrated on basic reading and mathematics skills in elementary grades; relatively few resources have gone to high schools. One reason for this is the assumption that earlier intervention is more effective. Another reason is that there are relatively few remedial materials for high school students.

A possible modification to chapter 1 would be to expand the program in senior high schools to connect basic and more advanced academic instruction with students' work experiences. Various changes in chapter 1 could ensure increased participation by high school students and tie chapter 1 services to occupational education and student work experience:

- Chapter 1 could be modified to make serving high school students easier.
- Chapter 1 programs could be required to serve more high school students.[54]
- High school chapter 1 programs could integrate academic remediation and advanced academic skills with occupational courses and work experience.
- Chapter 1 high schools could also be coordinated with Tech-Prep programs.[55]

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[53]For further discussion of possible modifications to chapter 1 in this regard see U.S. Library of Congress. Congressional Research Service. *Selected Reform Options for Federal Education Policies and the Elementary and Secondary Education Act.* CRS General Distribution Memorandum by the Education and Public Welfare Division, Education Section. Oct. 26, 1992. p. 28-31.

[54]Chapter 1 part C authorizes a separate program for high schools, which permits use of funds for "innovative," programs for a variety of activities including pre-employment and school-to-work transition, but has never been funded.

[55]Texas is already coordinating the JTPA with tech-prep programs. "JTPA can complement tech-prep programs by providing remediation to interested applicants and support services to those in training and by placing graduates into jobs." *Employment and Training Reporter*, July 29, 1992. p. 893. High school level chapter 1 could play a similar role, especially regarding remedial education for those interested in tech-prep programs.

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- Chapter 1 programs in high schools could be coordinated with work experiences.[56]

Job Training Partnership Act[57]

The Job Training Partnership Act might not need extensive modification to provide support for youth apprenticeship programs. Even though not all students in youth apprenticeship programs would qualify for JTPA, youth apprenticeships could be conducted under the three previously discussed JTPA programs: the Youth Training Program, State Education Coordination, and the Summer Youth Employment and Training Program. Indeed, one youth apprenticeship program we visited had used JTPA summer youth resources to fund apprentice positions during the summer for qualified youth.

The National Alliance of Business reports:

> There are no restrictions preventing JTPA-eligible high school students from participating in youth apprenticeships and, in fact, the U.S. Department of Labor-funded Maryland's Tomorrow Youth apprenticeship program is geared specifically to JTPA-eligible students. Other operators [of youth apprenticeship programs] report some difficulties in mixing JTPA-students with other students in a single program because JTPA funds must be carefully monitored to ensure that they are not spent on services to noneligible students.[58]

Perhaps the most promising connection between JTPA and youth apprenticeships is the new authority for **schoolwide projects** under the Youth Training Programs. Youth in the Youth Training Program do not have to meet **individual** eligibility requirements if they attend a public school that meets the following criteria: located in an area with a poverty rate of 30 percent or more, served by a local educational agency eligible for assistance under chapter 1 of the Elementary and Secondary Education Act, with 70 percent of the students facing at least one specified "barrier to employment," (including, for example, those with basic skill deficiencies, school dropouts, and pregnant or parenting youth) and conducting a program under a cooperative agreement between the SDA and the appropriate local educational agency. In other words, localities could develop schoolwide projects for providing youth apprenticeships in high poverty neighborhoods.

One modification that could be made to JTPA would be to direct the Secretary of Labor to use some of the $15 million reserved annually for capacity

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[56]Most high school students work for pay in some capacity. See, for example, Hamilton and Powers, *Youth and Society*, p. 245.

[57]Ann Lordeman (CRS-Education and Public Welfare Division) contributed to this section.

[58]National Alliance of Business. *Real Jobs for Real People. An Employer's Guide to Youth Apprenticeships*. Washington, June 1992. p. 17. (Hereafter cited as National Alliance of Business, *Real Jobs for Real People*)

building, information dissemination, and replication activities to promote youth apprenticeships. A second modification would be to **specifically** make youth apprenticeships an allowable direct training service. A third modification would be to relax the income eligibility requirements for students participating in youth apprenticeships. This modification would enable localities to develop apprenticeships that could serve all youth, but this would be a major change away from targeting JTPA services to the very disadvantaged.

Issues in Modifying Current Programs

A potential strength of integrating youth apprenticeships into one or more existing programs is reducing the perennial problem of coordinating job training and education programs that provide similar services to similar populations. Even though programs overlap and coordination and cooperation apparently make eminently good sense, issues of "turf" at the Federal, State, and local levels often prevent cooperation and lead to duplicative services.[59] In addition, programs that appear to have similar purposes must compete for funding. A separate youth apprenticeship program might be authorized but not funded--or funded at a minimal level--because it would be in competition for scarce resources with programs such as Tech-Prep and JTPA. Of course incorporating youth apprenticeships into one or more existing programs still does not guarantee funding.

A possible problem with modifying existing programs is that staff of these programs might see the youth apprenticeship component as an unwelcomed appendage. They might resist adding new features to a program they see as functioning well. In addition, as previously noted, adding youth apprenticeships to existing programs does not ensure funding. Moreover, authorizing youth apprenticeships through some programs such as JTPA and chapter 1 would provide access only to those who are eligible for these programs, e.g., those demonstrating that they are economically disadvantaged. Finally, some programs, such as Tech-Prep and JTPA, recently have been authorized or significantly amended, and some might argue that it is too soon to make major revisions to these programs.

Creating a New Program

In addition to, or instead of, modifying current programs, Congress might consider authorizing a separate, new youth apprenticeship program. A major question is whether we know enough about implementing youth apprenticeships to mount a nationwide Federal program. If, as some argue, we do not, then Congress might consider a more incremental approach involving demonstration programs and research and development before authorizing a full-scale program.

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[59]For a discussion of one solution to problems of coordination and duplication (the creation of the State Human Resource Investment Councils as part of the JTPA Amendments of 1992), see U.S. Library of Congress. Congressional Research Service. *Job Training Partnership Act: Legislation and Budget Issues*. CRS Issue Brief No. IB91117, by Ann Lordeman and Karen Spar. Sept. 10, 1991 (update regularly). Washington, 1991.

If, as others argue, studies and demonstration programs rarely lead to substantial and permanent changes, Congress could authorize a national competitive grant or formula grant program for youth apprenticeships.

Incremental Strategies

An incremental approach to implementing a national youth apprenticeship program could include some or all of the following components:

- A **national study** of existing American youth apprenticeship programs[60] to identify components of success, problems to avoid, and whether and how to mount larger-scale efforts;
- Identification of **successful models** of youth apprenticeships (perhaps building on a national study) by the DOL, the U.S. Department of Education (ED), or some other Federal agency, dissemination of these models to States and school districts, and provision of technical assistance to those interested in starting apprenticeship programs;
- A **national demonstration**, which would fund applicants to implement, modify, and evaluate models identified by a national study;
- **Planning or start-up grants** and **technical assistance** to State and local governments to encourage youth apprenticeships based on the demonstration models; and
- Federally sponsored **research and development** on topic such as curriculum development, occupational standards, and mentor training.

A National Youth Apprenticeship System

An alternative to an incremental, evolutionary Federal role is authorizing a national youth apprenticeship program. This could be done immediately or after a national study identified lessons that could inform the Federal initiation and oversight of such grants. A national youth apprenticeship program might include the following features:

- A national program would most likely involve an **intergovernmental partnership** of the Federal Government, States, and local entities.
- **Federal legislation and administration might set an overall framework** for the program and permit substantial State and local

[60] Several States and local partnerships have begun embryonic youth apprenticeship programs. Most appear to be new and/or very small. See, for example, State of Arkansas Request for Proposal; and Hamilton, Stephen F., Mary Agnes Hamilton, and Benjamin J. Wood. *Creating Apprenticeship Opportunities for Youth*. A Progress Report from the Youth Apprenticeship Demonstration Project in Broome County, New York, Sept. 1991.

discretion to implement the program to meet diverse economic, demographic, and educational conditions.

- A Federal framework might include: State and local **assurances against abuse** of children and workers; **guarantees of equal participation** for "special groups" such as women and the economically disadvantaged; broad **outlines of program configurations** (for example, that youth apprenticeship programs would link the last 2 years of high school with 2 years of postsecondary training); mechanisms for **aiding business-labor-education collaboration** (such as authorizing outside catalytic agencies).

- A national grant program could be developed to link youth apprenticeships to **other social investments**, such as infrastructure restoration. For example, contractors receiving funds for Federal highway construction and environmental cleanup could be required to participate in local youth apprenticeship programs and employ youth apprentices as some percentage of their workforce.

- Even if a national grants program were authorized, the Federal role most likely would include **other activities** that would also be sponsored under a more incremental approach such as research and development, dissemination, and technical assistance.

A Compromise Between the Incremental and Full-Scale Approaches

A possible compromise between an incremental approach and immediate full-scale implementation would be to begin with preliminary activities and phase in a national program during an initial authorization period. The program could be initially authorized for 5 years. Consortia of schools and businesses could be established. For the first year, grants would be used for planning. Specific apprenticeship occupations would be identified; detailed job analyses of these occupations would be conducted; curriculum based on the job analyses would be written; and teachers and employers would be selected and trained. The remaining 4 years, would be for implementation. States, regions, or local areas that already have apprenticeship programs could begin expansion during the first year. During the 5-year period, national studies would be conducted of existing programs. Information from these studies could inform technical assistance that the Federal Government would provide during the planning and implementation process. In addition, the national studies would inform the reauthorization process at the end of the initial 5-year authorization.

Issues in Creating a New Federal Program

If a more incremental approach is chosen, a central issue is how to ensure that a national program is initiated if evidence from demonstrations and other preliminary activities indicates that a national program is warranted. If a national program is authorized immediately, it is important to ensure that funds

are not forced on States and local participants before they are ready to spend the funds effectively.

Whenever a national youth apprenticeship program is initiated--incrementally, after a phase-in period, or immediately--several issues must be addressed:

- **Which Federal agency administers the program**. Various proposals locate a national youth apprenticeship program in different Federal agencies. One approach is to locate the program in the DOL, because adult apprentices are located under the Bureau of Apprenticeship and Training and because DOL is sponsoring several youth apprenticeship demonstrations. Other proposals would have the ED administer youth apprenticeships, in part based on the argument that these are more education programs than training programs. A third proposal would create a new independent agency (like the National Science Foundation), based on the view that no existing Federal entity is well equipped to coordinate a youth apprenticeship program. A final alternative is to make one agency responsible for administering the program and require "agreements of understanding" with other relative agencies to ensure their involvement and cooperation. The character of national youth apprenticeships is likely to be influenced by which agency oversees them. For example, a DOL-run program is likely to emphasize training and perhaps be better coordinated with DOL programs such as JTPA. An ED effort is more likely to resemble an education program and be better coordinated with Tech-Prep and other vocational education programs.

- **Whether to authorize competitive grants or a national formula grant.** Under a competitive grants program, a limited number of States or local programs would be funded based on which submitted the best proposals. Under a formula grant, all States, even all counties or all school districts, would receive funding based on some distributional mechanism. One advantage to the competitive grant approach is that it is more likely to fund programs that are well thought out. The corresponding disadvantage to a formula grant is that it might thrust money on many who are unprepared to spend it. One advantage of a formula program is that it can be structure to focus resources based on policy considerations--for example, by targeting funding to schools with high concentrations of economically disadvantaged students. A corresponding disadvantage of a competitive grants strategy is possible unintentional targeting of resources to larger or wealthier governmental entities that can afford staff to write high-quality proposals. A possible compromise is to tie the final decision to the level of funding appropriated for the program once it is authorized. The Tech-Prep programs under the Perkins Act has a "trigger" of $50 million. At or below that level of appropriations, Tech-Prep is a competitive grants program run by the Secretary of

Education; above that amount the Act stipulates a formula grant program for Tech-Prep.

- **Whom to fund**. There are several possibilities. For example, States could be funded directly, and the decision left to the States about substate allocations. States could be funded and directed on how to allocate funds (e.g., by formula) to consortia of schools and businesses. Alternatively funds could flow to States and then to "third party" entities. Those eligible might include, for example, universities, regional economic development agencies, and extension agencies. These grant recipients would serve as catalysts to assemble school and business participants and facilitate the planning and implementation of local and regional programs.

- **Which State agency to fund**. If funds flow to States, the question remains which State agency or agencies receive funds and oversee the youth apprenticeship program. Just as the national character of the program will be influenced by which Federal agency oversees it, the State and local character of youth apprenticeships will hinge on who is in charge at those levels. Youth apprenticeship programs are likely to resemble other education programs if funds flow through the State Education Agencies. Programs might have more of a job training emphasis if departments of labor are involved. Programs could have much more of an economic development purpose if funds go to State commerce departments. One approach is to fund programs through governors and allow them to decide which agency or agencies would administer the program.

- **Standards and certification**. As discussed previously, certifying successful completion of a youth apprenticeship is an important feature of a national youth apprenticeship system. Among other things, certification tells employers what academic and occupational skills and knowledge the youth apprenticeship has acquired. Developing certification processes for a wide range of occupations that could be represented in a national youth apprenticeship program will be incredibly complex. Although one could argue that this should be a private sector endeavor (as it essentially is for adult apprentice programs), there are a number of roles the Federal Government could play. For example, ED and DOL have recently awarded $4.7 million in grants to 13 consortia of educational groups and trade associations to develop job-specific standards. These grants could form a component of a national certification system. Another component of such a system could be built on DOL's Secretary's Commission on Achieving Necessary Skills (SCANS), which has developed a set of general workforce skills.[61] Beyond the development of specific and

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[61]See U.S. Department of Labor. *Secretary's Commission on Achieving Necessary Skills. Learning a Living: A Blueprint for High Performance*. A SCANS Report for America 2000. Washington, Apr. 1992. p. xiv.

generic standards, the Federal Government may have some role in developing the "infrastructure" to support a certification system. This might include: revising curriculum, textbooks, materials, and tests to reflect these standards; training teachers to incorporate and evaluate standards in their classrooms; and persuading and educating employers to use certificates as part of their hiring processes.

- **Coordination with other programs.** As noted previously, creating a separate youth apprenticeship program raises the necessity of helping to ensure that the program is coordinated with existing job training and education programs. This has been a perennial problem. As previously discussed, the most recent attempt to deal with coordination problems is the creation of the State Human Resource Council. At the very least, authorization of a new apprenticeship program could require that it be incorporated into this council.

POLICY QUESTIONS AND ISSUES

> ***School personnel** are likely to worry about whether a youth apprenticeship program might interfere with current programs. **Employers** are likely to be concerned with the costs and benefits to them of youth apprenticeships. **Workers** may be concerned about whether youth apprentices will provide a cheap source of labor that will displace current workers.*

Regardless of what role the Federal Government plays in youth apprenticeships, a series of questions and issues are likely to arise. Some issues and questions will be of most importance to particular groups. For example, school personnel are likely to be concerned about how a youth apprenticeship program might compete with (even threaten) current programs. Employers are likely to be concerned with the benefits to them of youth apprenticeship programs. Workers may be concerned about whether youth apprentices will provide a cheap source of labor that will displace current workers. In addition, there are issues and questions all parties will confront: For example, how much will the program cost? This section discusses first issues that specific groups might raise and then broader issues that arise concerning youth apprenticeship programs.

Issues for Schools and Teachers

Threats to Current Practices

Youth apprenticeship programs require changes in educational practices. Academic subjects must be integrated with work experience--meaning that English, math, science, and social studies teachers must rethink and revise what and how they teach. Substantially more occupationally specific training takes place on the job, which raises questions about the role for traditional vocational

education teachers. Do they support on-the-job training; concentrate on perhaps lower skill occupations (such as cosmetology) that are not included in youth apprenticeship programs; or find their programs phased out altogether?

The uncertainty and change required to implement a youth apprenticeship program can produce resistance from teachers. As noted earlier, teachers have ultimate veto power if they choose not to fully participate. Teachers' resistance probably can be reduced if they are meaningfully involved early in planning and implementation. In one site we visited, initial resistance appeared to result because teachers saw the program being pushed by people outside the schools, such as business leaders and other advocates of economic development. Teachers resented the implication that the educational system had failed and that "outsiders" could tell them how to fix it. Once this probably was recognized and teachers and principals were brought into the decision making process, resistance in the schools subsided to some degree.

Youth apprenticeships may require the roles of guidance counselors to change, and this can lead to resistance from that group. One teacher we interviewed pointed out that counseling is fragmented. Vocational teachers do some career counseling but only for students in their programs. School guidance counselors often concentrate on scheduling and crisis management. They do little career counseling, in part, because "they know little about the world of work." One possible strategy would be to provide opportunities for guidance counselors to regularly talk with employers and visit work sites. These discussions and visits could help educate counselors on the opportunities open to students participating in youth apprenticeship programs. Counselors then might be motivated to begin recruiting students in earlier grades and help them select courses to prepare themselves for youth apprenticeships.

In some communities, youth apprenticeships may be competing for students with traditional school programs. In one site we visited, some principals have resisted youth apprenticeships because they see the program taking away students. Faced with declining enrollment, principals fight for "warm bodies" to avoid losing teaching positions and other personnel. Because of principals' resistance, the program recruiter was allowed to visit less than 10 percent of the 10th grade class--those who would enter the program as juniors. She was not permitted to contact any students at one high school, which is a "magnet" school and part of the desegregation plan. School officials feared that the youth apprenticeship program would draw off students from this school and "unbalance" its enrollment.[62]

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[62]Another possible hinderance to student recruitment is students' reluctance to travel to distant worksites. Because the program in one site we visited concentrated on apprenticeships in one occupational area and because most participating employers are outside the city, students have to travel considerable distances (without much public transportation) to go to work. One teacher we interviewed said this would have been less of a problem if other occupations--such as health care--had been included.

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Where Should Apprentices' Academic Instruction Be Provided?

Another issue facing teachers and other educators is where academic instruction for youth apprentices should take place--in the students' "home" schools or in some separate facility. We found some disagreement among the programs we visited. In one program, a team teaches apprentices at a local community college. The designer of the program intentionally moved academic instruction off-site to facilitate reform. "We have to get away from 30 minute blocks of instruction," he said.

Other programs provide academic instruction in students' "home" schools. Program administrators at one site believe strongly that students should continue to pursue their academic instruction at their home schools. "If you separate apprentices from other students, you make the same mistake they made in putting most vocational education in [intermediate educational units]." This has several possible disadvantages. It makes apprentices feel less a part of their high school and its extracurricular activities. In addition, transportation to and from an off-site location adds to the cost of the program. Finally, a separate program can stigmatize participants as somehow inferior to those that remain full time at the "home" school.

Employers' Concerns

Obviously, youth apprenticeship programs will not succeed without employers' enthusiastic participation. At the same time, employer involvement raises several issues, both from the employers' perspective and from broader public policy perspectives. In the employers' view, are questions of costs and benefits. Employers clearly will face a variety of costs to support a youth apprenticeship program. (We discuss cost estimation more broadly below.) Employers want to know what benefits will accrue from their participation in the program. Some of the employers we interviewed see few immediate benefits to their companies or the bottom line. They are participating from a sense of civic responsibility. Others are concerned about shortages of skilled workers and see youth apprenticeships as a long term investment to secure the future. Still others employers are willing to invest in training youth apprentices but worry that their investment may benefit their competitors: A competing company can refuse to participate in the program and simply hire the apprentices once they have completed training another company provides.

From a broader public policy perspective, the issue arises as to whether to provide incentives to employers to participate. Incentives could take the form of tax credits for employers hiring and training youth apprentices. One argument for such incentives is that they are necessary to attract sufficient numbers of employers for a viable youth apprentice system. It is questionable whether there are enough employers available who would participate simply from a sense of civic duty or altruism. Moreover, concern with short-term returns may make employers reluctant to invest for longer term results, even if they realize they face future shortages of skilled workers.

On the other hand, incentives such as tax credits raise the program's cost to government. Moreover, they mean more paperwork for some employers, which can be a particular burden on owners of small businesses without the resources to track paperwork. One employer we interviewed was opposed for tax incentives for this reason. In addition, incentives may attract some employers for the wrong reasons; e.g., mainly to reduce tax liabilities and only secondarily to train apprentices.

Organized Labor's Concerns

Replacement by Younger, Lower-Wage Workers

Union leaders and members have expressed concern that business will use youth apprenticeship programs as a source of lower-paid, nonunion workers.[63] For example, a preliminary study in Wisconsin of youth apprenticeships reported that "many parents who belong to labor unions said they feared youth apprenticeship programs may jeopardize their own jobs, giving teenagers jobs that might otherwise go to dues-paying adult workers."[64]

Federal legislation could require assurances that youth apprentices not replace current workers or those laid off who are subject to recall.[65] But the actual implementation and safeguarding of these assurances will necessarily be local matters, possibly requiring detailed negotiation between a particular company and its local union. Details of such agreements are likely to differ widely. (The "catalytic" agent discussed above could be instrumental in facilitating those negotiations.)

In one plant we visited, labor and management arrived at a series of informal agreements to make sure that apprentices would not be seen as "scabs." If a labor dispute ever arose, the apprentices would not be allowed to cross a picket line. In addition, the union insisted that apprentices be supervised at all times and at no time should there be any question that the apprentice was doing the assigned job of a full time worker. Although youth apprentices are permitted to make parts and run machinery, they do not work in the "production mode." For example, youth apprentices might produce 2 parts per hour while an adult worker would produce 20 per hour. One reason for the much lower rate is that the mentor is expected to stop the youth apprentice for instruction, to quiz him or her on what is being done, etc. The apprentice is permitted to run production machinery, but if the supervising worker needs to

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[63]Arguably the concerns about youth apprenticeships that organized labor expresses may be of greater concern for workers who do not have union representation, who are the majority of the workforce.

[64]The same workers said they would like to see their own children enrolled in an apprenticeship program. Chiefs Embrace Plan to Focus on Work-Related Education. *Education Daily*, Nov. 13, 1991. p. 4.

[65]For examples of assurances, see S. 2745 introduced during the 102d Congress.

leave the work area for any reason, the machine is shut down so that the apprentice cannot produce parts on his own.

The Word "Apprenticeship"

An additional issue from the union perspective is the term **apprenticeship**. To some, apprenticeship refers to traditional adult "registered apprentice" programs that traditionally have developed as established entry points into particular crafts. Unions often play a key role in these apprenticeship programs. Something called a "**youth** apprenticeship" can be perceived as an attempt to interfere or supplant the traditional apprenticeships in this country.[66]

An obvious solution would be to use a different term--such as "pre-apprenticeship"--to label the program. As one union president told us, "If you changed the name from apprenticeship to something else, most of labor's problems would disappear." On the other hand, this might cause confusion. So much has been written and discussed under the rubric of youth apprenticeships that some would wonder how a pre-apprenticeship program differs from a youth apprenticeship program. Also the term pre-apprenticeship implies that the student is preparing for a full fledged apprenticeship, which is only one of the possible result of such a program.

General Issues

How Much Does an Apprenticeship Program Cost?

Creating a youth apprenticeship program might not be that expensive. One program coordinator told us: "We have plenty of money; the task is to reallocated it." This may be overstating the case. There almost certainly will be new costs associated with a youth apprenticeship program. Several parties must bear costs:

- Sponsoring **business** must pay the stipend or salary of the apprentice. If this is minimum wage of $4.25 per hour for 15 hours per week for a 9-month school year, the business would pay about $2,500 for each apprentice.[67] Additional (probably mostly noncash costs) would accrue for management time, worker time, space and equipment use, etc.[68]

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[66]For further discussion, see Youth Apprenticeships: Can They Improve the School-to-Work Transition?, p. 909.

[67]One employer we interviewed estimated costs of $20,000 for six apprentices.

[68]The National Alliance of Business reports that "aside from the limited costs associated with training mentors/advisors, the costs in a well-planned apprenticeship are not greater than those associated with the supervision of other new employees. In fact, a number of employers have noticed that the productivity and morale of experienced workers who act as advisors or mentors actually rise." National Alliance of Business, *Real Jobs for Real People*, p. 18.

- **Students or parents** might be expected to pay transportation costs to and from the work site. If not, this cost probably would be paid by the school system, perhaps with transportation vouchers.

- **School districts** would face costs associated with program planning and administration. Teachers participating in the program might need release time for various activities such as training and curriculum development. (For example, one superintendent we interviewed advocates release time for teachers to visit the job sites where apprentices work to learn more about the "real world" and what academic skills students apply on the job.) Teachers might also receive stipends if the apprenticeship program added to their teaching or advising load.[69]

- If a **coordinating agency** is involved, its funding might come from participating school districts and business, from the State or Federal Governments, and even from private sources.

General concerns and issues about youth apprenticeships include:

How much would a youth apprenticeship cost?

How much should a youth apprentice be paid?

How can abuse of youth apprentices be prevented?

How should national standards be set for youth apprenticeship programs?

How can equal access be provided for "special" populations such as minorities and women?

Initial **costs per student** of a program might be high. For example, we were told in one site we visited that the program was costing more than $18,000 per student (in contrast with about $4,000 per-student for academic courses and $6,000 for vocational education courses). However, these high per student costs appeared to be due mostly to the small number of students enrolled and the resulting low pupil-teacher ratio. Staff believed that a fully implemented program would produce considerable economies of scale. For example, if a school had 15 apprentices and 3 academic teachers, the pupil-teacher ratio would

[69]Hannah Roditi points out that costs to schools will depend on program design. One design feature is student-teacher ratio. The lower the ratio, the higher the cost of the program. Additional duties for teachers also can add to costs. If teachers are required to spend extra time developing curriculum, counseling students, or visiting worksites, union contracts may require additional compensation. On the other hand, costs (to the school district, at least) could be reduced to the extent that more training is done at the worksite and provided by the employer. Roditi, Hannah Finan. *How Much Does a Youth Apprenticeship Program Cost, and Who Will Pay for It?* Jobs for the Future. Somerville, Massachusetts, Aug. 1991. p. 7.

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be 5 to 1 (an expensive program on a per student basis). The same three teachers could serve more apprentices. For example, the teachers could team teach 30 apprentices for 2½ days a week while another 30 apprentices are at their worksites. At midweek the first group goes to their worksites, while the second group is in school for academic instruction. With a ratio of 20 students per teacher, this would be considerably less expensive on a per-pupil basis.

How Much Should Youth Apprentices Be Paid?

There are a number of perspectives on whether and how much youth apprentices should be paid. Some argue that apprentices should be paid a stipend (less than minimum wage) or even no wage at all. The argument is that the apprenticeship is part of the student's education. Offering a wage might attract students who are more interested in the money than in the educational value of the apprenticeship. Others point out that requiring participating businesses to pay at least a minimum wage shows business commitment to the program. They are more likely to take apprentices seriously and value their work if they pay them. Another perspective is that it is unrealistic not to pay youth apprentices. Apprenticeship programs will be competing against other jobs in the youth labor market. If the apprentices are not paid or paid less than high school students can earn elsewhere, programs may have problems filling positions as students opt for higher paying jobs. Federal and State labor laws may influence what apprentices are paid. For example, one apprenticeship program began by requiring employers to pay a stipend ($2.00 per hour) rather than minimum wage ($4.25). Program administrators preferred the lower wage because they could point out to students that they were investing in their education by taking a lower salary. However, the State labor department has required that they receive minimum wage because the apprentices are "producing" products and services.[70]

Abuse of Young Workers

Concern has been raised that youth apprenticeships have the potential for exploitation of young workers. One concern is the health and safety of high school students, especially those working in dangerous settings. Questions include who is liable if a student is injured on the job? Is it the employer? Is it the school? Is the youth apprentice covered under workers' compensation?

Even if a youth apprentice is not working in a hazardous work environment, his or her well being could be jeopardized in other ways. For example, some research suggests that working longer than 15 or 20 hours per week can have a negative influence on high school students' academic

[70]The National Alliance of Business advises: "In general, youth apprentice employees should be paid at the level of their productivity compare with other employees and in line with the demands of the labor market. . . . If students are only participating in job training classes, they don't necessarily have to be paid. If they are productive workers, then they should be paid according to normal procedures. . . . Ideally, there would be a series of clear pay increases granted as knowledge and skills are attained." National Alliance of Business, *Real Jobs for Real People*. p. 32.

achievement.[71] If students are attending school full time and working 30 or 40 hours a week, they may not get enough sleep; they will probably not have the time or energy to do homework; and extracurricular activities will likely be out of the question.[72]

One strategy for preventing abuse would be to require participants in a Federal youth apprentice program to agree to various assurances, including adherence to health and safety rules and limiting hours worked per week.[73] These assurances could be formalized for each apprentice in a written training agreement or contract signed by the school district's representatives, the employer, the parents, and the student. The agreement could lay out responsibilities and expectations for each party. For example, the student would agree to maintaining a specified grade point average, limit school and work absenteeism, and know and obey workplace safety rules. The school district might guarantee certain results such as high school graduation if the student upholds his or her responsibilities. The employer would agree to provide high quality job training in a safe environment.

Setting Uniform Occupational Standards

As noted above, a key aspect of a youth apprenticeship system is a process that certifies that those successfully completing the program have acquired skills in a particular occupation. But implementing such a system raises several policy questions about who should set standards and how standards should be set.

Some argue that teachers alone cannot set specific occupational standards because they do not know enough about the skill requirements of specific occupations. Others point out that business people cannot do it alone because they might set standards too narrowly to reflect specific skills in their plant (for example, skills required to operate specific milling machines that other plants do not have). Still others argue that business cannot be expected to set standards because they may not know what skills they need.[74]

Another problem with skill standards and assessment is that the process may center on proficiencies in individual skills; whereas, what is really important is how well workers perform overall processes requiring many skills.

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[71]Greenberger, Ellen and Laurence Steinberg. *When Teenagers Work*. New York, Basic Books, 1986. p. 228.

[72]One apprenticeship program we visited tries to limit apprentices' work to 2 hours per day. Of course there is no way to keep students from working additional jobs that are separate from the apprenticeship. There is some anecdotal evidence that some apprentices do this.

[73]For examples of assurances, see S. 2745 introduced during the 102d Congress.

[74]One lesson gleaned from DOL's demonstration projects is that many participating employers are having problems because they have never before had to identify key worker skills, at least in the detail needed to revise curriculum and certify competence. Lessons Learned From School-to-Work Demonstration Projects, p. 2 [from DOL, but no author, date, or agency attribution].

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"Knowing how to measure a part is a discrete skill. But being able to use that and other skills to work with a blueprint and build a part using whatever tools, methods, or skills are necessary" is what really needs to be assessed.[75]

It is obvious that various "stakeholders" (e.g., business, unions, educational institutions, and government) must be involved in the standards-setting process, but just how is unclear. Lerman and Pouncy discuss one possible model: the Federal Institute for Vocational Training in Germany. This entity "is governed by a board drawn from employers, unions, and the government. Through the Institute, competency standards are developed for nearly 400 occupational areas, a process that often takes years of research and negotiation among the parties. The standards specify the minimum competencies for an occupation as well as a training plan that guides the timing, sequencing, and organization of the training. Regional chambers, made up of business and union representatives, govern the program at the local level. They check the suitability of firm training, organize exams, deal with complaints, provide technical assistance, help match trainees with training firms."[76]

Access for Minorities and Women

Historically minorities and women have not had equal access to traditional apprenticeship programs, which raises concern that similar problems could arise in youth apprenticeships. While their participation rates in civilian apprenticeships have grown, problems of access apparently still exist.[77] For example the General Accounting Office (GAO) found that, although minorities hold a proportion of apprenticeships roughly equal to their participation rate in the workforce, minority apprentices tend to cluster in programs for lower paying occupations and are underrepresented in those for higher paying occupations. Women's participation in apprenticeships does not approximate their rate of labor market participation; and like minorities they have less access to apprenticeships in higher paying occupations.[78]

To what extent should youth apprenticeships be targeted to "special" populations such as the disadvantaged and women? This question will take on increasing importance over the next decade because labor market projections indicate that new workers entering the workforce will increasingly be women

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[75]Jobs for the Future. *New Training Strategies for a High Performance Metalworking Industry*. Report of a Conference. Cambridge, author, 1991. p. 29.

[76]Lerman, Robert I., and Hillary Pouncy. *Why America Should Develop a Youth Apprenticeship System*. Progress Policy Institute Policy Report, no. 5, Mar. 1990. p. 6.

[77]For an example of recent congressional action, see P.L. 102-530, the *Women in Apprenticeship and Nontraditional Occupations Act*.

[78]Minorities hold approximately 22 percent of all civilian apprentices; women hold about 7 percent. U.S. General Accounting Office. *Apprenticeship Training: Administration, Use, and Equal Opportunity*. Report to Congressional Requesters GAO/HRD-92-43, Mar. 1992. Appendix I Washington, Mar. 1992. p. 30-31.

and minorities. Population projections indicate that women could account for three of every five "net additions" to the workforce between 1988 and 2000. (Net additions take into account workers entering and leaving the workforce.) Blacks could account for nearly 17 percent of net additions, and Hispanics could account for more than 27 percent. In addition, because of declining numbers of young workers, employers might need to hire many who, in the past, they ignored or avoided, such as the economically and educationally disadvantaged.[79]

There appeared to be some consensus, at least in the sites we visited, that youth apprenticeship programs should aim to serve the "middle 50 percent" of the high school population. Apprenticeships may benefit others such as the disabled and students from families in severe poverty, but these groups have needs that apprenticeships alone could not fulfill.[80] Apprenticeships may also benefit the upper 25 percent--the college bound--but some argue that this group has other resources to draw from and should not have first priority for apprenticeships.[81] It is the middle group ("regular students" as one superintendent called them) that both can benefit from and need the services of youth apprenticeships.

CONCLUDING REMARKS

Arguably, youth apprenticeships have potential benefits for a large group of today's high school students. A well conceived and skillfully run program can help students improve academic achievement, acquire needed general and specific workforce training, complete high school, obtain postsecondary credentials, and ease the transition into the adult labor force. Carefully integrated academic instruction and on-the-job training can have beneficial effects on the student's performance both in school and at work. Thoughtful supervision from a mentor or job coach can teach specific job skills and socialize the student to the adult world.

At the same time, youth apprenticeships will not solve every problem that high school students face. Youth apprenticeships will not create jobs. Clearly, a youth apprenticeship program cannot even begin if the area it serves has lost many high paying, high skilled jobs. No matter how well trained youth

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[79]For further discussion of these trends, see U.S. Congress. Joint Economic Committee. Subcommittee on Technology and National Security. *Demographic Change and the Economy of the Nineties*. Chapter III. Demography and the Labor Force in the 1990s. Report, S. Prt. 102-55, 102d Congress, 1st Session. Washington, GPO, 1991.

[80]Some that we interviewed worry that, if the program is too explicitly targeted on the disadvantaged, it will be seen as a "dumping ground," just as vocational education often is. As a result, "better" students may be more difficult to recruit, and employers may be less likely to participate.

[81]At least some of the teachers and business leaders we talked with believe that having some "A" students adds to the prestige of the program and removes the stigma some attach to vocational education.

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apprentices are at the end of the program, if there are no high paying jobs available, they will face the same situation they would have faced had they obtained no training. In addition, youth apprenticeships may not be what every high school student needs. A youth apprenticeship program alone probably will be insufficient to greatly improve the prospects of students experiencing the severe disadvantages of growing up in areas of concentrated poverty.

Planning and implementing successful youth apprenticeship programs will be challenging. We have no precise model for these programs: Neither the European approaches nor American adult apprenticeships can be applied to American high school students without substantial modification. Inventing an American youth apprenticeship system will require breakthroughs on several fronts. These programs require more than just educational reform. They also hinge on serious involvement and commitment from employers, employees, and their representatives. Not only will teachers need to revise what and how they teach, but workers must learn new roles in mentoring and coaching teenagers. Furthermore, the widespread implementation of youth apprenticeships will rest on national systems of occupational standards and certification. For students and employers to take these program seriously, students must be able to certify their accomplishments when they complete their apprenticeship and see the benefit of participation and persistence.

Finally, it is unclear what the Federal role should be in creating and fostering youth apprenticeships. Should that role be limited to technical assistance and research, allowing States, local governments, and the private sector to decide how much this country invests in youth apprenticeships? Should the Federal Government assume more leadership but at a relatively slow pace--investing Federal resources first in demonstrations and planning before making a decision for or against a nationwide program? Or should the Federal Government take advantage of what some see as an infrequently occurring "window of opportunity" for a national initiative and authorize a nationwide youth apprenticeship program--hoping to work out problems and improve the program over time?

MATRIX AND SUMMARIES OF FEDERAL YOUTH APPRENTICESHIP LEGISLATION FROM THE 1992 CONGRESSIONAL SESSION

Following are summaries of proposed federal legislation relevant to youth apprenticeship and work-based learning programs. These summaries were prepared by Jobs for the Future during the summer of 1992. The accompanying matrix compares the main aspects of each one. Neither the summaries nor the matrix are comprehensive; they are, however, helpful guides to some of the most prominent concepts and players.

Updates on the following bills, Senate or House, can be obtained by calling the Congressional on-line system at 202-225-1772.

BILLS	National Youth Apprenticeship Act of 1992 (S. 2745/H.R. 5220)	High Skills Competetive Workforce Act (S.1790/H.R. 3470)	Nunn/McCurdy (H.R. 3998)	Valentine (H.R. 3507)
PROGRAM DESIGN	Early career prep; National definition that includes Academic Instruction Work-Based Learning; Work-site Learning & Experience; Youth Apprenticeship Agreement; Advice & Guidance; State & local flexibility within broad national definition	Career Prep— career awareness programs, counseling, programs integrating academics & work-site instruction; Community Youth Employment Compacts—public-private sector work experience	Early career prep; eligible 10th graders may sign agreements with employers. 11th and 12th—training at work sites in combination with high school courses. 30% in 11th grade. 50% in 12th grade	2 years secondary & 1-2 years post-secondary; Core program of math, social science, English, applied technical & management skills, classroom & work-site
ELIGIBILITY	High school youth in 11th and 12th grades	Career Prep—7th-12th grade; Community Youth Employment Compacts—high school	Middle school & high school students; Post-secondary school students	High school youth in 11th and 12th grades
ADMINISTRATION	Secretaries of Labor, Education & Commerce at federal level; comparable structure at state level; "local" entities to administer	Regional Employment & Training Boards for coordinated employment & training services	Independent Institute for Youth Apprenticeship to set up demo projects, evaluate results, make recommendations for nationwide system	Each organization receiving grant must form advisory board; States to establish Statewide Technical Education & Training Networks, administered by Secretary of Labor
SKILL CERTIFICATION	High school diploma & certificate of skills competency	High school completion or equivalent, recognized competencies such as certifications of mastery	Diploma at completion of high school & certificate upon completion of apprenticeship	Program leads to associate degree or other certificate of technical skills
VOLUNTARY SKILLS STANDARDS	References skill standards only	Voluntary national system of industry based, occupational standards & certifications via independent national board	Competency criteria for specific occupational fields, establishes certification procedures	Does not address
FUNDING MECHANISM AND AUTHORIZATION	New Century Workforce proposal boosts $55 million to $500 million over five years to support state programs, local demos and curriculum development centers.	Grants to States to develop statewide youth apprenticeship; School-to-Work Transition-$535 M in FY '93; Standards of Excellence in Education & Training - $30 million		Grants awarded to eligible non-profit organizations; $50 million for Youth Apprenticeship Programs for FY '92; $15 million for Networks for FY '92; funds as necessary thru FY '96

National Youth Apprenticeship Act of 1992. Senate BILL #: 2745 SPONSORS: Bob Dole (R-KS), James Jeffords (R-VT), Orrin Hatch (R-UT), Strom Thurmond (R-SC). House BILL #: 5220. SPONSORS: Steve Gunderson (R-WI), William Goodling (R-PA), Robert Michel (R-IL), Olympia Snowe (R-ME). Contact: Mary Gardner (from Gunderson's office) on Committee of Education and Labor Minority office: (202) 226-3110

(This bill was originally introduced by the Bush Administration. See the front page article for information on the recent funding increases proposed by the President.) Defines the essential elements of a Youth Apprenticeship Program and promotes the development of a systematic transition from school to work nation-wide utilizing the youth apprenticeship model. Apprenticeships would begin in 11th grade and would require a minimum of 20% at work in the first academic year and 40% of the second and continuing years. Includes a part-time, paid position that develops job skills and generic work place competencies, helps achieve academic and work-based learning requirements, and incorporates guidance from a work site mentor.

The High Skills, Competitive Workforce Act of 1991. SENATE Bill #: 1790. SPONSORS: Edward Kennedy (D-MA), Mark Hatfield (R-OR). Contact: Sarah Fox (202) 224-5363. HOUSE Bill#: 3470. SPONSORS: Richard Gephardt (D-MO), Ralph Regula (R-OH).

Incorporates many of the reforms advocated in *America's Choice: High Skills or Low Wages*. The Act is designed to stimulate cooperation by business, labor, schools and colleges, and state and local governments to improve the education and training of the U.S. work force and to develop new systems and strategies for meeting the needs of workers. It creates a National Board of Professional and Technical Standards, along with advisory committees for major industries, trades and for major occupations that cut across trades. The committees would develop proficiency standards, competency assessments and curriculum leading to associate degrees and professional certificates in a range of occupations. The bill authorizes $60 million in FY 92 for demonstration programs which provide high school students a curricula combining school and on-the-job training. $260 million provides for the establishment of a system of Youth Opportunity Centers that would offer dropouts occupational counseling and skills training.

Grandy (H.R. 2560)	Kildee (H.R. 4323)	Breaux (S. 2742)	Gunderson (H.R.4976)	Perkins (H.R. 5723)
Determined by local tax exempts called Apprenticeship Education Organizations (AEO). AEO administers apprenticeship program in partnership with schools	Does not address	Encourages the formation of tax exempt organizations to administer programs, post-secondary connections, coordination of classroom & work-site learning, training agreements	Encourages implementation on state-wide basis, career exploration, teacher training; agreements, career exploration classroom & work-based	Encourages development and implementation of comprehensive state school-to-work plans, including restructure of elementary and secondary curriculum, does same for local consortia; establishes DoL Clearinghouse for research and technical assistance
High school students, community college & GED students who are at least 18 years old	Does not apply	11th and 12th grade students	11th and 12th grade students	elementary and secondary students affected; focused on 11th and 12th grade
Local apprenticeship Education Organization (AEO) must have Board of Directors	National Education Goals Panel & Secretary of Education	Establishes a National Board for Professional & Technical Standards, tax exempt organizations will administer programs	"Compact" between DOL/ETA and DOE/OVAE to design system	20 member commission (Secretary of Education, Secretary of Labor, and 18 appointees of the President) administer grants
Does not address	Does not apply	Competencies and skills expected of students are outlined in training agreement, no specific degrees	Receipt of high school diploma & approved certificate of mastery of skills standards	Does not address
Does not address	Development of national workforce readiness standards	Development of occupational standards through industry advisory committees and Board	Develop system of skill standards for each major industry & multiple industry occupations	Development of "Voluntary National Industry and Occupation Skill Standards"
150% of any amount paid in cash to a youth skills training & education partnership shall be treated as charitable contribution under tax code; revenue loss estimated at $50 million per year	N/A	Grants awarded by Secretary of Education with guidance from National Educational Goals Panel: $15 million in FY '93, & as necessary through FY '97	Matching grants to states for state-wide & for local projects; FY '94-'97: $35 million for youth apprenticeship; $10 million for skill standards	$15 million for skill standards; $25 million grant to "Leadership" states; $35 million to "Developmental" states; $25 million to local consortia; $1 million for a DoL Clearinghouse

The Youth Apprenticeship Act of 1991.
SENATE Bill #: 2059. SPONSORS: Sam Nunn (D-GA), John Breaux (D-LA). Contact: Kathy O'Brien (at Nunn's Office) (202) 224-3521. HOUSE Bill #: 3998. SPONSORS: Dave McCurdy (D-OK).

Would establish demonstration programs linking secondary and postsecondary schools, and employers and labor to provide apprenticeship training. Youth apprenticeship programs would begin in the 10th grade, and continue through the senior year and one additional year at technical schools or community colleges. Students must pass basic skills tests after 10th grade to qualify for the program. Time spent in academic and apprenticeship training would be split 70 and 30 percent, respectively, in the junior year, and 50:50 in the senior year. The bill also establishes an Institute for Youth Apprenticeship with a board of 21 directors representing education, business, labor and civic leaders. The Institute would establish competency standards for apprenticeships and for trainers in specific occupations, evaluate demonstration programs, and make policy recommendations to Congress for nationwide programs.

The American Industrial Quality and Training Act of 1991. HOUSE Bill #: 3507. SPONSORS: Tim Valentine (D-NC). Contact: John Sigmon (202) 225-8113.

Authorizes $50 million for FY 92-96 for a Youth Technical Apprenticeship program run by the Department of Labor. The technical apprenticeship program would begin the junior year of high school and last through one or two years of community college training. Training would be in high-tech jobs at manufacturing or technology-based firms. Fifteen million dollars is authorized in FY 92-96 for grants to help states link their technical education and training systems. States would use the money to oversee articulation agreements between two-year and four-year colleges and high school and vocational schools to ensure training needs are met.

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"LEAP" - Leading Employers into Apprenticeship Partnerships.
HOUSE Bill #: 2550 (Now part of other bills. Was part of 4022 — Enterprise Zone legislation but did not make it through committee.). SPONSORS: Fred Grandy (R-IA), Charles Rangel (D-NY). Contact: Kathleen Black (Grandy's office)(202) 225-5476.

Encourages businesses to make donation to a tax-exempt organization set up to administer education programs in conjunction with local school systems, community colleges, trade schools and union apprenticeship programs. The LEAP Act would provide a 20 percent tax credit on top of the deduction for the tax-exempt entity. The new tax-exempt organization to which businesses (and unions) could contribute funds would be administered by a board of director majority-controlled by those who contribute funds.

Neighborhood Schools Improvement Act. HOUSE Bill #: 4323. SPONSORS: Dale Kildee (D-MI). Contact: Jeff McFarland (Kildee's office) (202) 225-4368.

Establishes a National Education and Goals Panel and a Technical Review Committee to states to: 1) establish a stakeholders panel, 2) develop a comprehensive plan for reforming public education across the state, 3) support state level activities under the plan and 4) provide subgrants and technical assistance to local districts. It also provides grants to fund the development of content standards and to develop model assessments of the national content standards for mathematics. This bill is the successor to bill H.R. 3320 and was amended in committee to include new provisions related to national education standards and assessment as well as the text of H.R. 5165 (Flexibility for Educational Effectiveness Act of 1992). H.R. 4323, as amended, was approved and ordered reported by the full Committee on Education and Labor on May 20, 1992.

"Youth STEP" Bill — Youth Skills Training and Education Partnerships Act. SENATE Bill #: 2742. SPONSORS: John Breaux (D-LA).Contact: Laird Burnett (202) 224-4623.

Would establish a new non-profit organization to foster partnerships between local businesses and local education for the purpose of establishing youth apprenticeship programs — the non-profit lifts the administrative burden of running a program off the shoulders of business and education systems. The board of directors of the non-profit would have representatives from local and state government, local schools, and contributing employers. Participating businesses would receive a deduction equal to 150% for contributions to the tax exempt organization. During the 9th and 10th grades, students may visit businesses to determine what they would like to pursue. Upon graduation, students would receive a high school diploma and would have a skill.

School to Work Transition and Youth Apprenticeship Act. HOUSE Bill #: 4976. SPONSORS: Steve Gunderson (R-WI), William Goodling (R-PA). Contact: Mary Gardner (from Gunderson's office) on Committee of Education and Labor Minority office: (202) 226-3110.

Establishes a compact between the Employment and Training Administration (DoL) and the Office of Adult and Vocational Education (DoE), in consultation with the Department of Commerce to: 1) design a youth apprenticeship system, 2) identify national industry standards, 3) provide information, technical assistance and research and, 4) oversee the administration of state and local Youth Apprenticeship development grants. The grants will be used to develop and implement youth apprenticeship programs which will include career exploration as a prerequisite. The program will utilize work-based learning to educate students so that they will either receive a certificate of mastery, or will attend a postsecondary or apprenticeship program.

School-to-Work Transition and Skill Standards Development Act of 1992. HOUSE Bill #: 5723. SPONSORS: Carl Perkins (D-KY).

Establishes a National Commission on a High Skills Workforce to make grants to states and local consortia developing "Voluntary National Industry and Occupation Skill Standards." Grantees make a commitment to develop such standards and pursue them by establishing appropriate elementary and secondary curricula and services for school-to-work programs. In addition, an informational clearinghouse is established in the Department of Labor to gather school-to-work information, establish a national database, and otherwise serve to assist and disseminate the findings of grantees.

Also available from JFF:

IMPROVING THE TRANSITION FROM SCHOOL TO WORK IN THE UNITED STATES

by Richard Kazis of Jobs for the Future

with a memorandum on the Youth Transition
by Paul E. Barton

January, 1993

This report describes the shortcomings of our nation's current school-to-work transition 'system' for the three-quarters of our students who do not attain a baccalaureate degree. It then turns to trends in program and policy innovation at the local, state, and national levels that might respond to the challenges identified. Finally, it outlines a set of policy proposals for federal action.

In the memorandum at the end of the report, the environment surrounding youth apprenticeship is explored, and a variety of ways of structuring a worksite-based complement to school instruction are described.

Please see order form at the end of this publication.

THIS CHAPTER CONTAINS:

Jobs for the Future Site Contacts

U.S. Department of Labor Site Contacts

Other Youth Apprenticeship Site Contacts

State-Level Youth Apprenticeship Contacts

JFF's National Youth Apprenticeship Initiative Advisory Group

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THIS CHAPTER CONTAINS:

Model Youth Apprenticeship Legislation, With Explanation of System Design Issues

Fact Sheet: Youth Apprenticeship and Insurance Liability

Fact Sheet: Child Labor Laws and Youth Apprenticeship

Model Youth Apprenticeship Legislation: System Design Issues for States

Model State Legislation on Youth Apprenticeship

Section One ..... Title

Section Two ..... Definitions

Section Three ..... Youth Apprenticeship System

Section Four ..... Industry and Occupational Skill Standards

Section Five ..... Local Youth Apprenticeship Councils

Section Six ..... Youth Apprenticeship Policy Board

Section Seven ..... Special Provisions

Section Eight ..... Tax Credit

Section Nine ..... Transition Clause

Section Ten ..... Effective Date Clause

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Model Youth Apprenticeship Legislation: System Design Issues for States

Introduction and Background.

In this document, Jobs for the Future presents model legislation for a statewide youth apprenticeship system. Our purpose in developing model legislation is to give state policymakers a general guide in constructing a statewide system of youth apprenticeship.

This model is meant to focus and stimulate debate about the state's role in supporting youth apprenticeship learning. Language proposed here raises several significant policy issues. By making certain policy choices clear, we hope to advance the discussion and debate on state system-building strategies.

We acknowledge that leading states have already adopted different approaches to youth apprenticeship in light of their unique political, legislative, programmatic, and economic situations. (See paper on state efforts prepared by JFF for the National Governor's Association meeting, included in this resource packet). In general, we concur with the need to be flexible in program and system design. At the same time, we believe that approaches to youth apprenticeship ought to be sufficiently consistent that the U.S. could develop a reasonably uniform *nationwide system.*

The model presented here proposes a flexible, decentralized state system. It does not presuppose a single delivery mechanism or governance structure, but establishes some general standards and approaches that are consistent with our vision of a quality learning system.

A legislator or other policymaker who reads this legislation in its entirety will get a good sense of how youth apprenticeship differs from other school-and-work approaches. Our model legislation conveys the qualitative changes that youth apprenticeship demands—changes in elementary school preparation, career counseling, the pedagogy of secondary and postsecondary education, use of the workplace as a learning environment, and the system by which students are prepared and credentialled for a world of work.

This legislation proposes a system in which the state is an accountable partner in shaping an economy founded on high skills. We view the state's role as acting in partnership with employers and others in a collaborative design and scaling up process, rather than through government regulations or short-lived demonstration programs.

This model legislation describes a free-standing youth apprenticeship effort. However, we recommend that youth apprenticeship be one cornerstone of a comprehensive, integrated human investment strategy which has as its goal the development of a high skill, high wage workforce. Ideally, youth apprenticeship should be linked to a broader state policy establishing skill development programs for adults, as well as to mainstream education reform efforts.

Youth apprenticeship is not for the faint of heart. Legislative decisions on the structure of youth apprenticeship will affect relationships between:

- employers and schools;
- students and the labor market;
- secondary and postsecondary (both two-year and four-year) institutions; and
- youth and adult training and re-training.

This memorandum summarizes the proposed model legislation. It explains the purpose and specifics of the different sections, provides some background on the technical language, and points out additional options that can help states customize an approach that works for their state.

Youth Apprenticeship—A Key to Mainstream Education Reform. The system proposed here places youth apprenticeship as part of a state's mainstream education reform agenda. We assume that young people who enter youth apprenticeships, like their peers who may choose other upper division secondary school options, will have already attained a high general standard of educational performance, as certified through a mechanism such as a Certificate of Initial Mastery. We also assume that youth apprenticeship is intended to reach scale within a state by ultimately attracting between 15 percent and 30 percent of a state's youth cohort. Reaching this level will require the elimination of the general educational track and demand significant restructuring of high school education.

In addition, youth apprenticeship should build on an already established network of school-to-work programs. Ideally, communities should have available a range of options that link school with work, from work exposure to work experience and community service to the more extensive mastery required by youth apprenticeship. To provide a more comprehensive effort, a state ought to enact a youth apprenticeship scheme that builds clear and systematic linkages with cooperative education, and with secondary-to-postsecondary programs such as Tech Prep.

Virtually all current vocational education programs should be modified to include work-based components. Over time, the distinction between 'employment' and 'education' programs for young people should blur as both move toward a model that combines general and occupation-specific learning with access to employers and jobs that open the door to career opportunities.

Analysis of Model State Legislation on Apprenticeship—Summary of Issues and Policy Options

Proposed Section 2. Definitions.

The legislation starts with a series of statutory definitions to help make it precise. Definitions are placed at the beginning of legislation to avoid lengthy repetition in the body of the bill. Traditionally, legislative definitions are written so that they do not give words a strained or artificial meaning out of keeping with ordinary usage. We tried to adhere to this maxim, but point out that youth apprenticeship language is laden with technical meaning. The significant differences between youth apprenticeship and other forms of work-related education can be understood immediately by a close reading of the definitions.

Proposed Section 3. Youth Apprenticeship System.

This section of the legislation accomplishes three main goals: it (a) mandates the establishment of a comprehensive, statewide youth apprenticeship system; (b) describes the fundamental components of youth apprenticeship programs; and (c) places responsibility for system development in a single executive agency (while requiring the cooperation of several other affected departments and agencies).

A Systems Approach. The *systems* approach is necessary to make youth apprenticeship a central strategy for education reform, workforce preparation, and economic development. Otherwise, the state's efforts could lead only to the establishment of a few excellent, though unconnected, local programs.

The legislation establishes a system of youth apprenticeship as its goal, and this section sets forth the components of a youth apprenticeship program. However, Section 5 of the model legislation makes it clear that individual programs must be sponsored by local youth apprenticeship councils—an association of specific employers, schools and community representatives that are responsible for designing and operating a series of programs at the community level. The system, then, does not force these programs 'top down' where local economic, educational, and political considerations might not provide a supportive environment.

This legislation gives priority to developing youth apprenticeship for high skill, high wage occupations and industries—those that demand the significant preparation and training that justifies using an intensive youth apprenticeship approach.

The Essential Elements of Youth Apprenticeship. The legislation presented here implements JFF's concept of youth apprenticeship as it has been described in our publication *Essential Elements of Youth Apprenticeship Programs, A Preliminary Outline.* Most of the components have technical definitions that have already been set forth in Section 2 (Definitions) of the legislation. This legislation contains the following key elements:

- **Employers provide paid work experience and guided learning opportunities at the worksite.** At the heart of youth apprenticeship is the provision of paid employment during the school year and summers. Jobs should be of progressively high quality as the apprentice moves through the multi-year program and should be tied to clear career ladders in the industry. What sets this model apart from other school-and-work efforts is its insistence on both education reform and expansion of the labor market options available to in-school youth.

Employers provide more than paid work experience; they also provide participants with guided learning experiences at work. Through formal training agreements, workplace training plans, mentoring by workplace personnel, and other approaches, participants learn important employability and technical skills at the worksite.

- **Academic and vocational learning at school are well-integrated.** As with the best of vocational education reform, youth apprenticeship programs break down the barriers between academic and vocational learning and infuse each with the best aspects of the other. Youth apprenticeship programs prepare to high academic standards. Classroom instruction focuses on cognitive as well as occupational skill development. The integration of academic and vocational learning is accomplished through team teaching, project-based instruction, and other instructional innovations.

- **School and workplace learning are coordinated and integrated.** Classroom instruction and workplace experiences are coordinated so that the instructional program at one location reinforces the other. This coordination is structured through regular interaction, consultation, and planning between workplace and school personnel.

- **Programs articulate high school and post-secondary learning and last at least two years.** Youth apprenticeship models generally begin in eleventh or twelfth grade and continue into postsecondary learning, with credits and certificates that are transferable to four-year academic programs.

- **Completers receive widely recognized credentials of both academic and occupational skill mastery.** Successful youth apprentices should receive certification of mastery of occupational skills that is recognized by firms across the industry. Training should prepare participants for employment in any of a number of jobs that are part of a broad occupational cluster. This certification is in addition to academic qualifications earned, including a high school diploma and post-secondary certificate or degree.

- **Programs are governed by broad coalitions of institutional partners.** Because youth apprenticeship requires new behaviors and collaborative commitments from high schools, employers, workers and their unions (where appropriate), postsecondary institutions, community groups, and government, representatives of the key stakeholders must be part of the program governance structure.

Governance. The issue of a governance structure for state youth apprenticeship policy is a critical one. This draft legislation contains language that places responsibility within the state's department of education. In practice, states have a wide variety of agencies that could well direct this system—a department of labor (which is typically the locus of a state's registered apprenticeship program), commerce, technical or community college system, an office of job training, or even within the governor's office. *Our choice of charging a state's education department with responsibility for central administration of a youth apprenticeship program is for illustrative purposes only.*

The point is that a single agency needs to be identified to assist in the development of a statewide system—to plan and develop support structures, to coordinate policy, to be accountable, to provide staff expertise and technical assistance to other state agencies, employers, local youth apprenticeship councils and legislative committees. This model legislation proposes a decentralized governance structure whereby the actual operation of youth apprenticeship programs is the responsibility of community-based councils that are acting in concert with statewide standards. A key authority for the state's central administration is to formally recognize the existence of local councils that are appropriate for a given geographic region and not duplicative of other councils that might already be functioning (see Section 5 (a)).

Technical Assistance. States will find it necessary to provide local councils and program participants with technical assistance on key program components such as curriculum and teacher development, credentialing and assessment, structuring work-based learning, forming employer consortia, and program design and evaluation. The technical assistance provided should include a major leadership and professional development component to build the skills of the key people in the state upon whom success depends.

Proposed Section 4. Skill Standards.

Youth apprenticeship is designed to improve connections between employers and schools, to the benefit of young people and employers. But for these programs to respond to employers' needs and also provide young people with skills that are clearly valued in the labor market, a system of occupational skill standards is necessary—benchmarked to the standards of the best of our international competitors and accepted by firms and labor organizations in relevant industries.

Negotiating the breadth and content of skill standards requires a healthy discussion of the kinds and levels of experience and skills employers expect of young entrants into their industries. Once standards are agreed to, youth apprenticeship programs can shape curriculum and instructional method to those benchmarks. In addition, demonstration of mastery then becomes the criterion for advancement and success, not seat-time in a classroom.

The approach to creating skill standards provides for the creation of temporary working committees to develop statewide standards. A committee would be created for each occupational area that is the focus of youth apprenticeship. Committees would be composed of persons knowledgeable about industry practice for the target occupation.

Under the proposed language, committees would have to consider a variety of factors in establishing skill standards—looking to future skill needs based on emerging technologies, and reviewing similar standards established in other states and leading foreign countries.

Skill standards as developed by an occupational committee would be formally approved by a youth apprenticeship advisory board (established in Section 6 of the Act) following a public hearing.

The standards must take into account that occupations are changing rapidly. Therefore, they should not be overly rigid or narrow, but should emphasize key qualifications, such as diagnosing and solving problems or working in groups, over rote mastery of narrowly defined tasks. The curriculum or instructional design through which the standards can be met may vary, but the standard or expected outcome should not.

Proposed Section 5. Local Councils.

Local youth apprenticeship councils have the key implementation responsibility under this system design. These councils would consist of broad representation of organizations and institutions within a local community—the groups that must work together to actually design and operate a youth apprenticeship program. Typically, a council would involve representatives of employers (or employer groups like a chamber of commerce), schools or school districts (both secondary and postsecondary), workers or labor organizations, parents, students, and community groups.

A group wishing to be a youth apprenticeship council would 'apply' to a state agency for approval. The state has an interest in knowing who is acting on behalf of a local community. The education

agency (or other agency responsible for system development) could look at the membership to determine whether the proposed council is representative of all interests within the community. A council would sponsor all youth apprentice learning programs, regardless of industry or occupation, within the community.

Once approved, the council would have wide responsibility for assisting in the design of local programs, marketing, employer recruitment, curriculum and teacher/supervisor development, and finance. In addition, the council would be responsible for seeing that details of each program are contained in a youth apprentice agreement—a contractual document that clearly defines the responsibilities of students, schools, and employers over the course of the program, including reference to the statewide skill standards that the youth apprentice will be expected to meet.

Proposed Section 6. Youth Apprenticeship Policy Board.

Section 6 establishes a state level policy council, appointed by the governor, to coordinate the development of the youth apprenticeship system and to establish connections with other state initiatives for comprehensive workforce development, including educational standards development, current workforce skills upgrading, postsecondary education, economic development, registered apprenticeship, etc.

The board would have several specific responsibilities, including:

- giving general policy advice to the agency responsible for system development;
- formally approving the skill standards recommended by an occupational standards committee;
- coordination of both standards and system with other job training systems in the state; and
- submitting evaluation reports.

Research and Evaluation. Creating a high quality system will not be easy, especially since states lack the institutional infrastructure that supports such systems. Systematic research and evaluation will be necessary to ensure effective development.

Accordingly, the legislation proposes a systematic research, development and evaluation program to track and monitor student outcomes and program costs, and to establish at the program level what works, what doesn't and why. In addition, the research and development efforts aim at developing a clear understanding of the developmental challenges of establishing youth apprenticeship, including improving the design of curricula (both school and work-based), credentialing systems, learning strategies and outcomes, etc. Resources should be provided for adequate documentation and evaluation of the demonstrations.

Proposed Section 7. Special Provisions.

Finally, several miscellaneous policy issues are combined into a single section. These include:

- Section (7)(a) extends general protections for workplace safety and health to student apprentices. We envision coverage by a state's existing worker compensation system, state wage and hour laws, occupational safety, health insurance, and other similar statutory protections.

- Section (7)(b) prevents employers from displacing incumbent adult workers by hiring youth apprentices, and making clear that this prohibition extends to general employment benefits that are available to a currently employed worker.

- Section (7)(c) requires the state agency responsible for the development of labor market information to develop new information systems to help identify occupations for youth apprenticeship. If a state were to develop the kinds of labor market information that would support a strong career counseling system (see Section 3 above), some statutory language describing that effort might be placed here.

- Section (7)(d) charges the head of a state's teacher education schools to develop a plan for the certification and re-certification of teachers and workplace instructors who are prepared to teach in a cognitive apprenticeship environment. On the school side, perhaps the most significant obstacle to broad diffusion is the challenge of preparing significant numbers of teachers for instructional methods that emphasize coaching, active and applied learning, and interdisciplinary team-teaching.

- Section (7)(e) attempts to establish a simple funding mechanism for youth apprenticeship program development. The section establishes a general policy that per capita state aid to local school districts ought to follow the student into a youth apprenticeship program. Since most statutory formulas for state education aid are quite complex, the state's department of education is empowered to develop administrative rules to implement this general policy.

- Section (7)(f) gives the agency responsible for youth apprenticeship system development the authority to contract the end-of-program assessment to a private or quasi-public organization. The purpose for this section is to encourage the creation of new institutions, centered in the private sector, to certify the occupational proficiency of youth apprentices. In Germany, for example, assessment of practical competencies is performed by the chamber of commerce and industry and chamber of crafts (which have universal membership by all business establishments). This way, the private sector has substantial quality control over skill acquisition by the youth apprentices. The stamp of approval of these chambers gives credibility and value to the credential in ways that could not happen if graduates were certified through schools or public agencies.

- Section (7)(g) prevents confining student apprentices into a dead end educational track that no longer links with college. A student must not be penalized for selecting a youth apprenticeship educational option—so states must actively design their system to assure that a student retains all available options for completing high school and continuing in postsecondary education.

- Section (7)(h) charges the state's public community college and baccalaureate college systems with the mandate to find ways for youth apprentices to articulate into two-year and four-year degree-granting programs. Youth Apprenticeship should be framed as a program that spans secondary and postsecondary education. It is not an alternative to college, but a way to make college accessible to a broader range of the population. Most frequently, youth apprenticeship programs will combine the last two years of high school and the first two years of postsecondary school into multi-year programs that lead to an associates degree or transferable college credit.

Proposed Section 8. Employer Incentives; Tax Credits.

Employer incentives. A critical limiting factor to developing work-based learning alternatives for young people is the willingness of employers to provide paid work opportunities and structured training. Increasing the participation of businesses may require targeting some incentives to

employers. *While we do not necessarily favor any tax credit scheme, we included language in this model legislation so that policymakers can consider whether such a approach is right for their state.*

Previous sections of the legislation empowered the department of education (see Section (3)(c)) and local youth apprenticeship councils (see Section (5)(c)) to recruit employers for youth apprenticeship and to provide technical assistance in developing work-based learning programs. We envisioned public efforts that might include:

- Conduct a coordinated, outreach appeal to business leaders for greater participation in work-based learning programs for young people. These appeals should be targeted to employers in industries with a history of involvement in education-business partnerships, with labor shortages in key technical and professional occupations, and with an ability to influence business leaders in their own and other industries.
- Underwrite the development and dissemination of written and audiovisual materials, 'how-to guides,' and training packages for employers, industry consortia and trade associations. These materials should respond to specific employer concerns about participation and highlight firms already involved in best practice programs.
- Expand demonstration project funding for models of school-and-work integration that explicitly require employer commitments to provide employment and skill development.
- Provide grants to industry-based consortia of firms or their associations to develop and promote work-based learning programs at the local and state levels and to play a central role in ensuring that programs train to industry's needs.

On the issue of indirect subsidies, we recommend that states consider the following issues:

- Some policymakers recommend a tax credit to lower the cost of employer participation, either through wage subsidies for youth apprentices or through tax credits for participating firms. Subsidies are preferable to allowing firms to pay a subminimum wage, which is politically volatile and sends the wrong signal to firms, unions, and program participants regarding the value of their contribution. Tax credit programs run the risk of subsidizing participation that would occur naturally.

  This model legislation proposes a tax credit against corporate income tax, to maximum of $1,500 per youth apprentice per year. An additional credit of $2,000 would be available for each student who successfully completes a graduating assessment—an incentive for employers to find ways to help their youth program succeed.

- Other policymakers suggest that state funds *not* be used to subsidize the wages of youth apprentices, but may be used to train mentors, develop curricula, establish performance standards and assessment, develop consortia of employers and third party intermediaries to link schools and employers, etc.

- From the standpoint of providing an incentive that is more carefully targeted, states might want to consider limiting a tax credit to (a) smaller businesses (however defined) that have the hardest time funding training investments; (b) firms that make enhancements in technology or work organization that trigger a demand for high skills; or (c) groups of firms that collaborate for training purposes, thereby providing an incentive for networking to overcome diseconomies of scale.

Model State Legislation on Youth Apprenticeship

A BILL TO BE ENTITLED

AN ACT

relating to the establishment of a youth apprenticeship learning system within the State of Astoria.

BE IT ENACTED BY THE LEGISLATURE OF THE STATE OF ASTORIA:

SECTION 1. SHORT TITLE. This Act may be cited as the Youth Apprenticeship Act.

SECTION 2. DEFINITIONS. In this Act:

(1) "Articulation" means a formal agreement between a secondary and a postsecondary educational institution that defines a continuous course sequence for a youth apprenticeship learning program and specifies all requirements for advanced standing in the postsecondary institution and transcripted credit for postsecondary learning completed by youth apprentices during high school.

(2) "Assessment" means the formal process by which a youth apprentice demonstrates mastery of academic and occupational competencies in order to meet educational objectives and industry skill standards expected of a youth apprenticeship learning program.

(3) "Gateway assessment" means a performance-based assessment that determines whether a student is able to read, write, compute, and perform in mathematics, physical and natural sciences, technology, history, geography, politics, economics, and English at the tenth grade level.

(3) "Industry skill standard" means a specification of occupational competencies that are recognized as having competitive value in an industry or industrial sector and which clearly describe the qualifications and knowledge that entry-level workers must possess to perform successfully within a specific high-skill occupation or occupational area.

(4) "Integrated learning" means the process that connects academic instruction with occupational education, work-based learning and work experience.

(5) "Occupational credential" means a certificate that is awarded to a youth apprentice as the result of a satisfactory assessment.

(6) "Registered apprenticeship" means the apprenticeship program that is governed by Sec. 333, Astoria Education Code.

(7) "School-to-work transition" means the process by which a student who has demonstrated mastery of basic academic skills, as represented by satisfactory performance on a gateway assessment, acquires practical and technical knowledge to progress into a productive and satisfying job or career in the labor force.

(8) "Structured work-based learning" means the portion of a youth apprenticeship program that uses the workplace as a learning environment and consists of a planned sequence of job assignments, worksite instruction, and formal on-the-job training.

(9) "Youth apprentice" means a student who is at least 16 years of age and is engaged in a structured program of integrated learning as specified in a youth apprentice agreement.

SECTION 3. YOUTH APPRENTICESHIP SYSTEM. (a) The department of education, with the cooperation of the department of labor, the department of technical education and community

colleges, the board of regents, and the department of commerce, economic development and job training, shall establish a comprehensive system of youth apprenticeships to prepare high school students for high-skilled professional and technical employment. The system shall provide for youth apprenticeship learning programs within each school district that offer high school students a range of occupational choices and enhance a student's prospects for productive employment, continued education, and career development. The department shall give priority to developing youth apprenticeship learning programs for technical occupations that offer entry-level jobs with good opportunities for advancement into high skill, high wage careers.

(b) A youth apprenticeship learning program means a program that has a specific industry or occupational focus, combines secondary and postsecondary academic instruction with structured work-based learning, and leads to the award of a high school diploma, a postsecondary credential, an occupational credential, or advanced placement in a registered apprenticeship. A youth apprenticeship learning program must involve, at a minimum:

(1) organized career development for all students beginning with career awareness in elementary school and including career exploration and community service activities beginning no later than the eighth grade and continuing through the high school years;

(2) entry by any high school student, beginning in the 11th or 12th grade, who has demonstrated mastery of basic skills through satisfactory performance on a gateway assessment and has completed an educational portfolio that includes representative classroom products;

(3) an organized program of integrated learning that includes high standards of academic instruction, structured work-based learning, and year-round work experience;

(4) academic instruction in social studies, humanities, the arts, advanced science and mathematics, and language arts, presented in a manner that helps a student apprentice develop high skills in reading, writing, reasoning, information retrieval, problem-solving, listening, speaking, critical thinking, and working effectively both alone and in a group;

(5) structured work-based learning that is organized to help a student apprentice master appropriate industry or occupational skill standards;

(6) at least one year of secondary education;

(7) at least one year of postsecondary education at a technical college, community college, or institution of higher learning or advanced standing in a registered apprenticeship program;

(8) the payment of wages on a scale that recognizes the progressive acquisition of knowledge and skills by a student apprentice during the term of the program and considers the prevailing wages and compensation for full-time workers within the occupational area that is the subject of the learning program;

(9) regular performance feedback as well as a satisfactory assessment;

(10) a clear description of all additional requirements, if any, that are necessary for a youth apprentice to qualify for the award of a two-year or four-year postsecondary degree from the state system of higher education; and

(11) sponsorship by a local youth apprenticeship council as defined in Section 5 of this Act.

(c) The department shall provide technical assistance to secondary and postsecondary schools, employers, and local youth apprenticeship councils related to the design and operation of youth apprenticeship programs. Such assistance may include:

(1) curriculum development and integration;

(2) structuring work-based learning for youth apprentices;

(3) assessment;

(4) in-service training and professional development of counselling and guidance staff;

(5) in-service training and professional development of teachers and instructors in both schools and the workplace;

(6) articulation agreements;

(7) industry skill standards;

(8) the role of youth apprenticeships in the context of all available school-to-work transition options;

(9) recruitment and marketing of employers and students;

(10) connecting youth apprenticeship and school-to-work transition programs with ongoing reforms of elementary and secondary education; and

(11) connecting youth apprenticeship and school-to-work programs with the system of adult job training and workforce investment.

(d) The department may enter into intergovernmental agreements with any other executive agency to assist in the provision of technical services as described in subsection (c) of this section.

SECTION 4. INDUSTRY AND OCCUPATIONAL SKILL STANDARDS. (a) The youth apprenticeship policy board shall appoint and convene committees to recommend industry and occupational skill standards for youth apprenticeship learning programs. Each committee shall include, as appropriate, representatives of employers, statewide or national trade associations, workers or labor organizations, and educators who are familiar with the skills, knowledge, and competencies required by exemplary workers in targeted occupations.

(b) In developing and recommending standards, committees shall consider:

(1) key qualifications that are common to all occupations;

(2) skill needs of current jobs in the targeted occupation;

(3) the future skill needs of jobs in the targeted occupation based on reasonable forecasts of technological and occupational change;

(4) skills needed in related occupations;

(5) advanced skills needed in occupations that are related to the target occupation through reasonably identifiable career ladders;

(6) skill standards promulgated by national trade and industry associations, federal agencies, other states;

(7) standards that would help student apprentices understand all aspects of the industry that is the focus of the standard, including planning, management, finances, technical and production skills, underlying principles of technology, labor issues, and health and safety; and

(8) skills standards that exist for comparable education systems in other developed nations.

(c) The board shall cooperate with the department of education, the department of labor and job training and the department of technical education and community colleges to ensure that industry skill standards developed for youth apprenticeship learning programs are in accord with skill standards that exist or may be developed for adult workers in job training and advanced skill mastery programs.

(d) The department of education shall make available professional staff to assist all committees in researching, developing, and recommending skill standards.

(e) The board shall convene a public hearing prior to approving skill standards recommended by a committee.

(f) The board shall periodically review approved skill standards to determine the need for revisions or the adoption of new standards. Every standard once approved shall be reviewed at least once every five years. The board shall establish procedures for incorporating revised standards into existing youth apprenticeship agreements.

SECTION 5. LOCAL YOUTH APPRENTICESHIP COUNCILS. (a) The department of education, upon the recommendation of the youth apprenticeship policy board, may recognize a local youth apprenticeship council to facilitate the design and operation of youth apprenticeship learning programs within a defined region of the state.

(b) A local youth apprenticeship council must reasonably represent interested groups within its region, and be comprised of employers, industry or trade associations, chambers of commerce, workers or organized labor, parents, community organizations or associations, and employees, administrators, or board members of secondary or postsecondary institutions.

(c) A local youth apprenticeship council may:

(1) approve youth apprenticeship learning programs within its region of operation;

(2) work with secondary and postsecondary education institutions, employers, labor organizations, and other groups, to facilitate the design and operation of all youth apprenticeship learning programs within its region of operation;

(3) facilitate articulation agreements necessary for the efficient operation of youth apprenticeship learning programs;

(4) conduct marketing efforts to recruit additional employers and schools for participation in a youth apprenticeship learning program, including special efforts to recruit minority and female students into apprenticeships involving nontraditional occupations;

(5) provide technical assistance to participating schools and employers;

(6) provide advice and recommendation to governmental units, school boards, local boards of technical colleges, chambers of commerce, and other entities regarding the operation of youth apprenticeship learning programs;

(7) monitor the progress of youth apprenticeship learning programs in meeting program objectives;

(8) collaborate with local youth apprenticeship councils in other regions of the state to jointly develop curricula, provide professional development for teachers and worksite instructors, and share information and experiences about program design and implementation;

(9) if it is incorporated as a not-for-profit corporation under Section 555, Astoria Business Corporation Code, administer public and private grants and other funds to assist the design, implementation, or operation of youth apprenticeship learning programs; and

(10) facilitate the resolution of disagreements arising in connection with youth apprenticeship agreements.

(d) An entity wishing to be recognized as a local youth apprenticeship council shall submit a written request to the youth apprenticeship policy board. An application must identify the proposed composition of the local council, terms of membership, geographic coverage, organizational form, and other information required by the board to make a decision on the application.

(e) A local youth apprenticeship council shall sponsor all youth apprenticeship learning programs that operate within its region of operation. Each program must meet all requirements established in Section (b)(3) of this Act. The terms and conditions of each youth apprenticeship learning program must be clearly set forth in a written agreement between the employer, youth apprentice, parent of a youth apprentice, and local education agency that describes:

(1) the occupation or occupational area that is the focus of the youth apprenticeship;

(2) specific occupational competencies contained within the industry skill standard applicable to the youth apprenticeship learning program;

(3) all rights and obligations of a youth apprentice, secondary or postsecondary institution, and employer or group of employers with respect to a youth apprenticeship learning program;

(4) the compensation and benefits that will be paid a youth apprentice during the apprenticeship period; and

(5) the secondary, postsecondary, and occupational credentials that will be awarded for successful completion of program requirements.

SECTION 6. YOUTH APPRENTICESHIP POLICY BOARD. (a) The youth apprenticeship policy board is composed of twelve members appointed by the governor with the advice and consent of the senate. Four members of the board shall represent private employers or employer associations, three members shall represent workers, organized labor or community-based organizations, three members shall represent local education institutions, and two members shall represent the general public. Appointments should reflect the geographic, cultural, ethnic, and gender-based diversity of the state.

(b) In addition to members appointed by the governor, the board shall include the following ex officio members:

(1) the governor or designee, who shall be a nonvoting member;

(2) the superintendent of public schools;

(3) the commissioner of the department of labor;

(4) the director of the department of technical education and community colleges;

(5) the executive director of the board of regents; and

(6) the director of the department of commerce, economic development and job training.

(c) Appointed members of the board serve staggered terms of four years with the terms of one-third of the members expiring on February 1 of each odd-numbered year.

(d) Appointed board members shall serve without compensation, but shall be entitled to reimbursement for reasonable and necessary expenses incurred in carrying out required duties.

(e) The board shall:

(1) advise the department of education concerning the planning and implementation of a youth apprenticeship system;

(2) approve industry or occupational skill standards that are recommended by skill committees, and monitor the need for periodic revision or amendments to existing skill standards;

(3) collect and maintain participation and other data on, monitor and evaluate local youth apprenticeship programs;

(4) ensure that the implementation of the youth apprenticeship system is consistent with state education, labor, or job training standards and policies;

(5) make recommendations to the department of education regarding the approval of entities wishing to be recognized as a local youth apprenticeship council; and

(6) submit a report to the legislature before the end of the 30th day of each regular session evaluating the performance of the youth apprenticeship system and making recommendations for system improvements.

(f) The governor, with approval of the speaker of the house and the president of the senate, may designate an existing statewide public board, council, or commission that has statutory responsibility related to education, workforce preparation, job training or human investment policy to carry out the duties and powers of the youth apprenticeship policy board upon the affirmative finding that such transfer would further the efficient administration of government.

SECTION 7. SPECIAL PROVISIONS. (a) All state and federal laws relating to the safety, health, and well-being of workers apply to youth apprentices.

(b) The employment of a youth apprentice may not displace or cause any reduction in the hours of nonovertime work, wages, or employment benefits of any currently employed worker.

(c) The department of labor shall collect labor market information that will assist in the identification of industries and occupational clusters that are characterized by high growth, upward mobility, high wages, and strong technical skills, and are focused on high performance, diversity and investment in skill development.

(d) The chancellor of the board of regents shall develop and implement a plan for the preparation, certification, and re-certification of teachers and workplace instructors who are proficient in developing curricula for and teaching in integrated learning programs.

(e) A portion of state aid to school districts, technical colleges, and community colleges, shall be used to fund the costs of planning and operating local youth apprenticeship learning programs. The

portion shall be estimated by dividing the total amount of state aid received by a school district or community college district by the average daily attendance of all students enrolled in that district and multiplying the result by the number of youth apprentices who are employed within the district. The department of education may enact rules and procedures for determining the actual amounts of state funds used for youth apprenticeship learning programs, so long as the actual amounts reasonably carry out the intent of this subsection.

(f) The department of education, with the approval of the youth apprenticeship policy board, may enter into an agreement with any private not-for-profit or quasi-governmental organization that has statewide jurisdiction to administer assessments to determine if a youth apprentice has mastered the academic and occupational competencies necessary for the award of an occupational credential. An agreement entered into under this subsection may not exceed a period of three years, and may permit the organization to establish a reasonable fee for its assessment services.

(g) The department of education shall ensure that a student's decision to enter into a youth apprenticeship agreement will not affect his or her status with regard to fulfilling all prerequisites for graduation from high school and for eligibility to enroll in any postsecondary degree program in the state.

(h) The chancellor of the board of regents shall develop an and implement a plan that provides for the award of credit or advanced standing in two-year or four-year postsecondary degree programs for graduates of youth apprenticeship learning programs. The plan shall be submitted to the governor and to the youth apprenticeship policy board not later than two years following the effective date of this Act.

SECTION 8. TAX CREDIT. Chapter 3, Astoria Tax Code, is amended by adding Section 555 to read as follows: (a) A credit against the amount of taxes otherwise due under this chapter shall be allowed to any eligible taxpayer who employs a youth apprentice under a youth apprenticeship agreement as defined in Section 5(e), Astoria Youth Apprenticeship Act. The amount of the credit shall equal the total value of gross wages paid to a youth apprentice during the tax year, not to exceed $1,500 per youth apprentice in any one year. An eligible taxpayer is entitled to an additional credit not to exceed $2,000 for each youth apprentice that is employed by the taxpayer and is awarded a youth apprentice occupational credential during the tax year.

(b) The commissioner of revenue shall promulgate rules and regulations to implement the provisions of this section.

SECTION 9. INITIAL APPOINTEES. In appointing the initial members of the youth apprenticeship policy board, the governor shall appoint four persons to terms expiring February 1, 1997; four to terms expiring February 1, 1998; and four to terms expiring February 1, 1999.

SECTION 10. EFFECTIVE DATE. This Act takes effect September 1, 1993. Section 8 of this Act applies to tax years beginning on or after January 1, 1994.

Youth Apprenticeship and Insurance Liability

A Fact Sheet Prepared by Jobs for the Future • National Youth Apprenticeship Initiative

This fact sheet presents general guidelines for understanding liability issues surrounding youth apprenticeship. Also included are innovations at the state and local level that have tried to lessen the costs and responsibility of employers. The final section points out ways in which practitioners feel their programs could benefit from changes in state or federal laws and policies.

Readers of this fact sheet should also see the JFF Fact Sheet entitled "Youth Apprenticeship and Child Labor Laws" and the matrix "10 Site Practices on Employment, Pay and Insurance Liability for Youth Apprentices."

Liability issues can be broken down into three general categories—a student's transportation to and from the job site; the time spent on the job; and post-employment. While many initial questions have been raised about the added expense or complication of having students on the job site, youth apprenticeship program designers have found most of the legal issues straightforward and costs minimal (with the exception of transportation). In fact, a brief inquiry conducted by the youth apprenticeship program in Pennsylvania found that the addition of 16-year-olds to a workforce would *not* increase insurance premiums.

Liability is largely dependent on who is the actual employer of the youth apprentice. Aside from the company itself, a school or a third-party might also act as the employer. In Maine, technical schools will act as the agent for the student apprentice. The schools will bill the employers for hours worked by the student. In the Tulsa Craftsmanship 2000 program, a 501(c)(3) acts as the employer and is thus responsible for all liabilities.

Transportation

In general, the party responsible for transportation is also liable in the case of an accident. If the school is transporting the student, then normal school bus coverage applies. The same is true if the employer covers transportation.

Some programs have students sign an agreement at the beginning stating that they are responsible for their own transportation. Teachers and administrators cite precedent for this in cooperative education programs. In the case of a student driving him/herself to the workplace during the school day, there should be no difference from liability issues for students getting to school or an extra-curricular activity.

- Under an up-front agreement, some programs state that if a student chooses to transport her/himself, then the school is not liable and the student's own insurance should apply.
- The Careers and Occupational Awareness-Check into Health (COACH) program in Michigan has a letter from the school system's insurer stating that it would cover students participating in the program *except* when they are actually on the job and being paid by the employer. In the absence of a student's own insurance, the school would, in that case, be the liable party.
- In Philadelphia the school has had to provide urban students with costly transportation to workplaces in outlying areas, because local auto insurance rates are prohibitively high for youth.
- Project ProTech students in Boston rely on public transportation to their jobs in city hospitals. The school system provides students with a transit pass.
- Oakland, CA, Health and Bioscience Academy students are provided with a transit pass for the first month of their paid internship, either by the school system or the employer.

- Cambridge-Lesley Careers in Education students either walk or ride the elementary school bus to the schools where they work as teacher's aids. As unpaid volunteers, they remain under school liability policies.
- When mentors of Oakland, CA, Health and Bioscience Academy transport students, they are required to notify the school district of their plans ahead of time, in writing. Provided they do this, the school district provides insurance coverage, similar to a school field trip.

Workers' Compensation

A student in an observer or volunteer role in the workplace is, in effect, still in an extension of the school. Once the student becomes actively involved in the work, and/or begins to operate equipment, or is paid by the employer, then s/he becomes an employee of the firm. The student then comes under the employer's workers' compensation coverage.

- Oregon legislation on youth apprenticeships specifically states that the training agent—the employer—shall provide workers' compensation coverage for youth apprentices.
- As the employer, Maine technical schools are legally responsible for workers' compensation coverage. This is structured into the program so as to avoid the disincentive of workers' compensation costs to the employer. Health insurance may eventually be done in a similar manner.
- In Pickens County, SC, students working for very small employers unable to provide workers' compensation will be covered under the State School Board Association's policy. The state board is self-insured, and cooperative students have been added to the policy in the past for no extra charge.
- Some Oakland, CA, Health and Bioscience Academy students are paid by the school district with federal grant money. These students are covered by the school district.

Unemployment Insurance

Unemployment insurance is generally not provided to youth apprentices, either by specific state legal exemption or by the fact that they are part-time employees.

- In Pennsylvania, the work of a student learner under 22 who is enrolled at a non-profit or public education institution that grants credit for academic/work experience activities is not considered when determining the eligibility of an individual for unemployment compensation benefits.
- Michigan law states that student learners are not eligible for unemployment insurance.
- Project ProTech employers in Boston have agreed to make youth apprenticeship students immune to any company lay-offs.

Liability for student actions on the job

An employer is liable for the finished product or service produced in her/his establishment.

Policy Changes recommended for youth apprenticeship

- State coverage of transportation reimbursement for schools.
- State insurance coverage for employers and/or students who wish to provide their own transportation.
- State provision of workers' compensation in situations in which employers are unable to provide coverage because of their size.

Child Labor Laws and Youth Apprenticeship

A Fact Sheet Prepared by Jobs for the Future • National Youth Apprenticeship Initiative

Since youth apprenticeship is designed to give students paid work experience, program planners must be well-versed in existing federal and state laws regarding the employment of minors. Statutes and administrative regulations establish legal guidelines on the number of hours minors may work, the types of jobs they can perform, necessary safety precautions, and the amount and form of compensation. The guidelines can affect both program and system design.

This fact sheet summarizes some basic aspects of federal law and presents the experience and innovations of ten different sites in developing youth apprenticeship within the guidelines of this law. The final section lays out how federal and state law regarding child labor and work-based learning might be changed to help support youth apprenticeship while maintaining the protections for minors that are the goal of child labor laws.

Readers of this fact sheet should also refer to the JFF Fact Sheet entitled "Youth Apprenticeship and Insurance Liability" and the matrix "10 Site Practices on Employment, Pay and Insurance Liability for Youth Apprentices."

Federal and State Laws

Laws regarding the employment of minors exist both at the federal and the state levels. The federal and state governments share jurisdiction in this area. Federal law on the employment of minors in nonagricultural work is summarized in "Child Labor Bulletin No. 101: Child Labor Requirements in Nonagricultural Occupations," based on the Fair Labor Standards Act (FLSA) (See Appendix 1). Readers interested in agricultural employment of minors should see "Child Labor Bulletin No. 102." References to the employment of minors hereafter will be to nonagricultural employment.

All states also have child labor laws. Individual state laws on youth employment are issued by the state department of labor and can be easily obtained. State child labor laws and/or other federal laws, such as those relating to occupational health and safety, etc., may have higher standards. In general, *the more stringent standard must be observed*. This is also true for state vs. federal minimum wage laws—the higher minimum applies.

Federal law establishes standards for two distinct groups of youth—14- and 15-year-olds and 16- and 17-year-olds. The law treats persons who are at least eighteen years of age as adult workers.

In general, minimum age standards are as follows:

- **Ages 14 or 15.** A minor must be at least 14 years of age to be employed in specified occupations, outside school hours, for limited periods of time each day and each week. The FLSA limits 14 and 15 year-olds to specific occupations when employed in retail, food service or gas establishments. The law forbids employment in most other industries, including manufacturing, processing, transportation and communication, unless the youth is involved in a Work Experience and Career Exploration Program (see below). In addition, 14- and 15-year-olds are prohibited from working in any of the occupations deemed by the U.S. Secretary of Labor as hazardous, with no exceptions.
- **Age 16.** Sixteen years is the basic minimum age for employment in the United States. At 16 years of age, youths may be employed in any occupation other than one declared hazardous by the Secretary of Labor. (The sections below list Hazardous Occupations and Exemptions).
- **Age 18.** Minimum age for employment in nonagricultural occupations declared hazardous by the Secretary of Labor.

Time and Hour Restrictions

Federal law restricts the number of allowable work hours for 14- and 15-year-olds. Fourteen- and 15-year-olds are *not permitted to work:*

- during school hours;
- before 7 a.m. or after 7 p.m. (*except* 9 p.m. from June 1 through Labor Day);
- more than three hours per day on school days; or
- more than 18 hours per week during school weeks.

Students enrolled in Work Experience and Career Exploration Programs (see definition below) may be employed during the school day and up to 23 hours in a school week. (Appendix 2 lists federal and individual state hour restrictions).

Federal law does not restrict the time or duration of employment for 16- and 17-year-olds. Some states have set limits for this group. Wisconsin, for example, limits 16- and 17-year-olds to 4 hours of employment on school days.

Hazardous Occupations

The Secretary of Labor has declared 17 occupations to be particularly hazardous or detrimental to the health and well-being of 16- and 17-year-olds. These include, for example, manufacturing and storing explosives; motor-vehicle driving and outside helper; exposure to radioactive substances; power-driven hoisting apparatus; mining (other than coal mining); power-driven bakery machines; manufacturing brick, tile and kindred products; and wrecking, demolition and shipbreaking operations.

In some cases, careful structuring of the workplace component can ensure that students do not operate certain machinery, thus satisfying U.S. Department of Labor concerns. States may have additions to this list. Exemptions exist for apprentices and student learners in *some* of these occupations (see "Exemptions" below).

Youth apprenticeship programs geared toward manufacturing, metalworking and health care bear the greatest concern for specifics of this section of the law, since occupations that involve power-driven metal forming, punching and shearing machines and those involving exposure to radioactive substances and to ionizing radiations are considered hazardous. Exemptions exist in the former category, but not the latter.

- Legislation establishing youth apprenticeship in the State of Oregon states that "in licensed trades and in hazardous occupations, on-the-job training for students 16 years of age may be simulated cooperatively at industry training centers." Discretion as to where this training will take place—on the job site or in the training center—lies with the apprenticeship committee employing the youth.

Exemptions for Educational Programs: WECEP, Apprenticeship and Student Learner

Minors enrolled in certain kinds of school or apprenticeship programs are exempt from some provisions of federal and state laws.

Work Experience and Career Exploration Programs. WECEP programs provide 14- and 15-year-olds with exposure to the workplace, linked with classroom job-related and employability skills instruction for which credit is granted. The FLSA states that WECEP programs must be administered by a school under the authority of the State Educational Agency and with approval of the Wage and

Hour Division Adminstrator of the U.S. Department of Labor. Enrollment allows a student to work during school hours, up to 3 hours in a day and 23 hours in a school week. Students also may work in certain occupations otherwise prohibited for which a variation has been granted by the Administrator of the Wage and Hour Division.

Apprentices. The 16- or 17-year-old apprentice must be employed in a craft recognized as an apprenticeable trade and registered by the Bureau of Apprenticeship and Training (BAT) of the U.S. Department of Labor or the state equivalent. Apprentices are permitted to perform some of the occupations deemed hazardous by the law, provided they are employed under a set of specified conditions.

An apprentice is permitted to perform some of the occupations deemed hazardous by the law, provided the work is *incidental* to his or her training; such work is *intermittent* and for short periods of time; and that the work be performed under the direct and close supervision of a journeyman.

Practitioners and Department of Labor officials interpret the terms "incidental" and "intermittent" to mean that a minor may operate certain types of machinery, for example, in order to learn about it, but should not be employed as a regular operator. Case law may further clarify these definitions.

The link of this apprentice status to apprenticeable occupations and to BAT places limits on its applicability to youth apprenticeship. Most apprenticeship programs require entrants to be 18-years old and hold a high school diploma or equivalent.

Student learner. The student learner is also permitted to be employed in certain hazardous occupations. S/he must be:

(1) enrolled in a cooperative vocational program recognized by the state or local educational authority, or in a similar program conducted by a private school; or

(2) employed under a written agreement that contains the student's name and is signed by the employer and the school coordinator or principal. The agreement must provide that:

   (i) the work in hazardous occupations is *incidental* to the training;

   (ii) such work is *intermittent* and for short periods of time, and under the direct and close supervision of a qualified and experienced person;

   (iii) safety instruction must be given in schools and integrated with on-the job training; and

   (iv) a schedule of organized and progressive work processes to be performed on the job is prepared.

The student learner status is the one most frequently used by youth apprenticeship programs in that most (though not all) states have cooperative education programs in place. Some states are working toward development of youth apprenticeship programs that satisfy the requirements of the student learner provisions under the federal law.

- The State of Oregon hopes to gain Department of Labor approval for its 18-week career exploration and work experience program, leading to youth apprenticeship with a certified training agent.
- The proposed National Youth Apprenticeship Act of 1992 (S.2745 and HR.5220) would amend FLSA to recognize youth apprentices enrolled in certified youth apprenticeship programs as student learners. Youth apprentices would receive the same protections and be treated the same as student learners under existing law.

- Proposed Pennsylvania legislation regarding secondary education would recognize youth apprenticeship as a means of secondary education completion. This would permit the youth apprentice to operate under the same exemptions as the "student learner."

Safety and Health

Safety instruction must be provided to the student learner by the school and correlated by the employer with on-the-job training. OSHA regulations do not apply to schools since they are public employers. However, if a student's school experience is at work, then whatever OSHA regulations apply to the workplace are relevant.

- The Careers and Occupational Awareness-Check into Health (COACH) program in Kalamazoo, MI has found that in order to work in health occupations, students must have a TB test, a second MMR (Mumps, Measles, and Rubella) vaccination, and a Hepatitis B vaccination. The Hepatitis B vaccination costs approximately $120. For students not covered by their parent's or social service plans, the school system will have to pick up the bill.
- Project ProTech students working in Boston hospitals were given various tests, and/or immunizations prior to commencing work.

Work Permits and Agreements

The federal laws allow employers to protect themselves from unintentional violation of the child labor provisions by keeping on file an employment or age certificate for each minor employed. States often go beyond this to require that minors obtain a work permit or educational certificate from their school district prior to gaining employment.

In accordance with federal law, the student learner must be employed under a written agreement providing for safety instruction, supervision and an schedule of organized and progressive work processes for the student. This agreement must include the student's name and be signed by the employer and the school coordinator or principal.

Youth apprenticeship programs have developed their own training agreements that include further clarification of expectations, rules and responsibilities (See Appendix 3 for Pennsylvania sample).

- The Pasadena, CA School District issues work permits to all students under 18 seeking any type of employment. Undocumented foreign students in the Partnership Academy have been unable gain a permit because they do not have a social security number.
- Foreign-born Pasadena Partnership Academy students have been unable to gain employment in defense-related industries due to citizenship requirements.

Stipends and Wages

The FLSA requires the payment of minimum wage. Federal exemptions do exist for trainees and student learners, although individual state laws may override them. According to Department of Labor officials, the key determinant to the appropriate form and level of payment is the employment relationship, that is whether the student is a regular employee, a trainee or a student gaining work-related experience as part of her/his education.

Under certain conditions as specified in Section 14 of the FLSA, employers may pay a training wage of at least 85 percent of the minimum, but not less than $3.35 an hour for up to 90 days to employees under the age of 20. The FLSA prohibits employers from displacing employees in order to hire employees at the training wage. Provisions regarding the training wage expire March 31, 1993.

Section 14 of the FLSA also allows for the payment of a sub-minimum wage to student learners under certificate of the Department of Labor. Such certificates are granted only if the students' work is seen and treated as part of their education.

Student learners in some youth apprenticehip and cooperative vocational education programs are given a stipend—payment not linked specifically to hours or production. This is done in the interest of cost, and of not adding students to employers' payrolls.

- Some of the students in Broome County, NY receive a stipend that is below minimum wage. Parents and students are made aware of this ahead of time. The school bills the employer for a student's time and, in turn, pays the student.
- Massachusetts requires that an employer pay at least minimum wage to students enrolled in any type of educational work program.
- In Oregon, where youth apprenticeship is linked to certified adult apprenticeship programs, legislation mandates that the student youth apprentice ". . .shall begin at a wage that is 80 percent of the first period of the apprenticeship wage established by the appropriate apprenticeship committee for the applicable standards, but shall not be less than the state minimum wage." In addition, "youth apprentices shall be evaluated for wage increases consistent with the policies established by the participating local apprenticeship committee."
- Maine plans to stretch students' pay over 52 weeks of the year, although students will be working fewer weeks. This will be done under an initial overall agreement among the student, parent or guardian, employer and school.
- All Tulsa youth apprentices are given a stipend equal to minimum wage for 40 hours per week, 220 school days per year. They are paid for school and work time, and can earn a bonus for earning good grades.
- Students working in Boston hospitals are evaluated for raises based on work performance.
- In certain instances, unions have taken positions on the stipends vs. wage question. In Broome County, NY, unions and workers supported the concept of a stipend because non-hourly workers would not be included in lay-off decisions, etc. At a site in Pennsylvania unions preferred a straight wage accompanying a clearly defined skill level, more in line with standard wage-skill grades for the general workforce.
- Families of Oakland, CA, Health and Bioscience Academy students have been reluctant to have them earn wages that may jeopardize the family's public assistance grant. In some cases, the school system has been able to ensure that the grants would not be reduced, while in other cases the students have had to volunteer rather than be paid a wage.

Thoughts about Child Labor Policy Changes and Clarifications for Youth Apprenticeship

- Federal legislation must recognize and allow student learners to be enrolled in youth apprenticeship programs.
- State child labor laws that restrict work in certain occupations should be reviewed and updated where appropriate.
- Maximum allowable work hours for 16- and 17-year-olds should allow students the option of 2–3 week blocks at work. Some state child labor laws are based on the assumption that students will always spend some part of the school day in school.

- Federal law should permit immigrant students awaiting proper documentation to gain employment. Precedent for this exists for foreign college students in the U.S.. Under federal law, foreign students are permitted to work at jobs related to their curriculum, provided they are granted credit for such work from the post-secondary institution.
- States should ensure that wages earned by students of families on public assistance do not reduce or jeopardize the family's aid package.

THIS CHAPTER CONTAINS:

Recommended Reading

JFF Publications List

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JFF YOUTH APPRENTICESHIP AND WORK-BASED LEARNING REPORTS

- ☐ ***Learning that Works: A Youth Apprenticeship Briefing Book*** (1993) **$35.00**
- ☐ ***Improving the Transition from School to Work in the United States*** (1993) **$5.00**
- ☐ ***From High School to High-Skilled Health Careers: New Models of Work-and-Learning in Health Care*** (1992) **$10.00**
- ☐ ***Union Perspectives on New Work-based Youth Apprenticeship Initiatives*** (1992) **$10.00**
- ☐ ***Effective Professional Development: A Guide for Youth Apprenticeship and Work-based Learning Programs*** (1992) **$5.00**
- ☐ ***Youth Apprenticeship, American Style: A Strategy for Expanding School and Career Opportunities*** (1991) **$10.00**
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- ☐ ***New Training Strategies for a High Performance Telstalworking Industry*** (1991) **$10.00**
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- ☐ ***Voices from School and Home: Arkansas Parents and Students Talk about Preparing for the World of Work and the Potential for Youth Apprenticeship*** (1991) **$5.00**
- ☐ ***Voices from School and Home: Pennsylvania Students and Parents Talk About Preparing for the World of Work and a Youth Apprenticeship Program*** (1990) **$5.00**
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Colorado:

- ☐ ***A Call to Action*** (1990) **$10.00**
- ☐ ***Education & Training in the Colorado Economy*** (1990) **$5.00**
- ☐ ***Developing a Competitive Workforce in Colorado: A Community Workbook*** (1990) **$10.00**

Connecticut:

- ☐ ***Jobs for Connecticut's Future*** (1986) **$5.00**

Indiana:

- ☐ ***Executive Report of the Jobs for Indiana's Future Program*** (1989) **$10.00**
- ☐ ***Education & Training in the Indiana Economy*** (1989) **$5.00**

Mississippi:

- ☐ ***Seizing the Future: A Commitment to Competitiveness*** (final report of the Mississippi Special Task Force on Economic Development Planning, 1989) **$10.00**
- ☐ ***Globally Competitive People*** (report to the Human Resource Committee, Mississippi SpecialTask Force on Economic Development Planning, 1989) **$5.00**
- ☐ ***Report on the Mississippi Employer Survey*** (1989) **$5.00**

Missouri:

- ☐ ***The Missouri Challenge*** (1991) **$10.00**
- ☐ ***Education & Training in the Missouri Economy*** (1991) **$5.00**

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